JUNE 10, 1954

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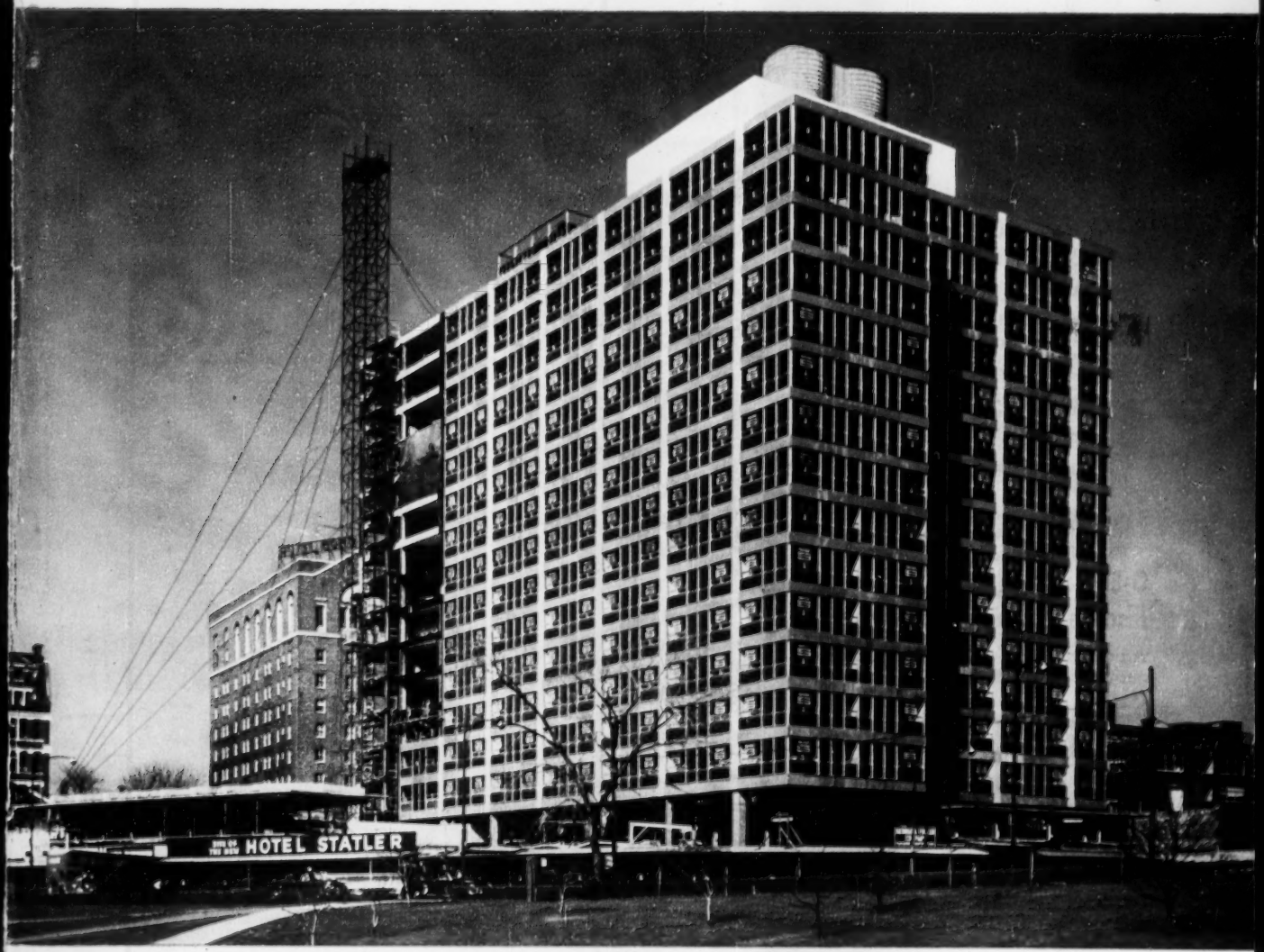
EIGHTIETH YEAR OF PUBLICATION



Thinnest wall ever used for a tall building encloses 16-story Hartford, Conn., hotel (p. 31)

★ **Record gates to control Niagara flow** (p. 40

★ **$200-million campus development set** (p.

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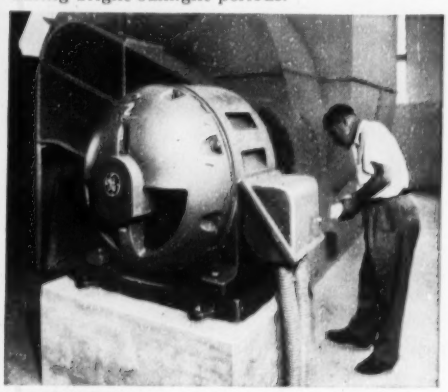
ENGINEERING REPORTS:

OPERATING ECONOMY for the new G-E equipped Norfolk-Portsmouth tunnel is provided by its variable-intensity fluorescent lighting system, Tri-Clad* ventilating-fan motors, centralized control, and reliable power supply.

G-E FLUORESCENT LIGHTING provides safer, more uniform, shadowless illumination. To avoid light-blindness at portals, intensity is increased during bright sunlight periods.



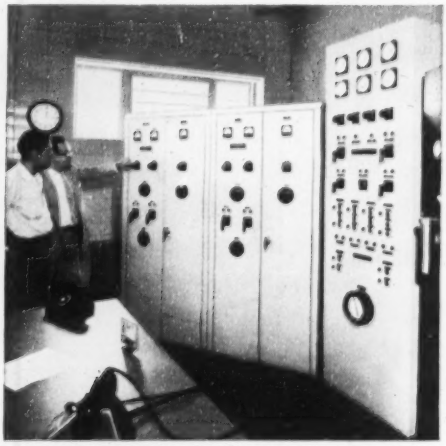
VENTILATION is provided by four exhaust fans, each driven by a G-E 2-speed, 250/40-hp motor. Motors run at high speed only in emergencies.

Continuous lines of light increase safety of new tunnel

G-E electrical system for Norfolk-Portsmouth Tunnel also features one-man control, reliable power supply

An outstanding feature of the 3350-foot tunnel, recently built beneath the Elizabeth River as part of a bridge-tunnel project linking Norfolk and Portsmouth, Va., is the electrical system that helps handle heavy traffic with greater safety and economy. The electrical equipment was designed by General Electric engineers working closely with the Elizabeth River Bridge Tunnel Commission, its consultants, Parsons, Brinckerhoff, Hall & Macdonald, who designed the system, and its contractor, Merritt-Chapman & Scott.

Let G-E engineers help your engineers or consultants on electric equipment for heavy construction projects. Contact your local G-E Apparatus Sales Office early in the planning stage. General Electric Company, Schenectady 5, N. Y. *Reg. trade-mark of General Electric Co. 664-27



ONE-MAN OPERATION is a key feature of this main control panel from which lighting, ventilation, and two G-E unit substations are controlled.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC

TO MINIMIZE ROCK SLIDES

Bolt the Rock!

Showing Bethlehem Rock Anchor Bolt as it appears when driven in hole. Wedge is forced deep into 6-in. slot, spreading bolt-end. Bolt is used with 6-in. or 8-in. square rock anchor plate.

This typical installation shows how Bethlehem Rock Anchor Bolts reinforce the rock formation, preventing rock layers and boulders from sliding.

Here is a simple, practical way to safeguard traffic from rock slides at dangerous locations.

Bethlehem Rock Anchor Bolts help prevent rock slides by bolting together the stratified slabs of rock, stabilizing the slope. They reinforce the rock formation, making it virtually impossible for layers of rock or individual boulders to slide or fall. They are particularly effective in cuts with high banks, or on steep hillsides.

Bethlehem Rock Anchor Bolts come in lengths of from 2 ft to 10 ft. One end of the bolt has 5 in. of 1-in. rolled threads. The opposite end contains a 6-in. centered slot, which forms the equivalent of two half-rounds. The slot is made by forging. As none of the original, cross-sectional area is lost during the forging operation, the slotted portion is as strong as the body of the bolt.

How Bolt Is Installed

After the length of the bolt is determined by geologic conditions, a 1¼-in. hole is drilled in the rock, to a depth of about 3 in. less than the length of the bolt. A wedge is started in the slot. Then the bolt is inserted, wedge-first, into the drilled hole. Using dolly to protect threads from damage, the rock drill drives bolt to refusal. Wedge is forced deep into slot, spreading bolt-end against sides of hole. Rock anchor plate is then bolted against rock by tightening nut with pneumatic impact wrench.

If you would like a copy of our two-color booklet on rock anchor bolting, write to the nearest Bethlehem office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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BETHLEHEM ROCK ANCHOR BOLTS

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OPTICAL *REPEATING* TRANSIT Rugged, compact design ...with 20 years of proven service under tough field conditions.

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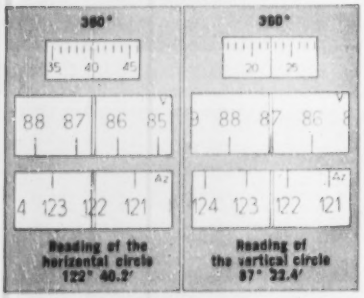

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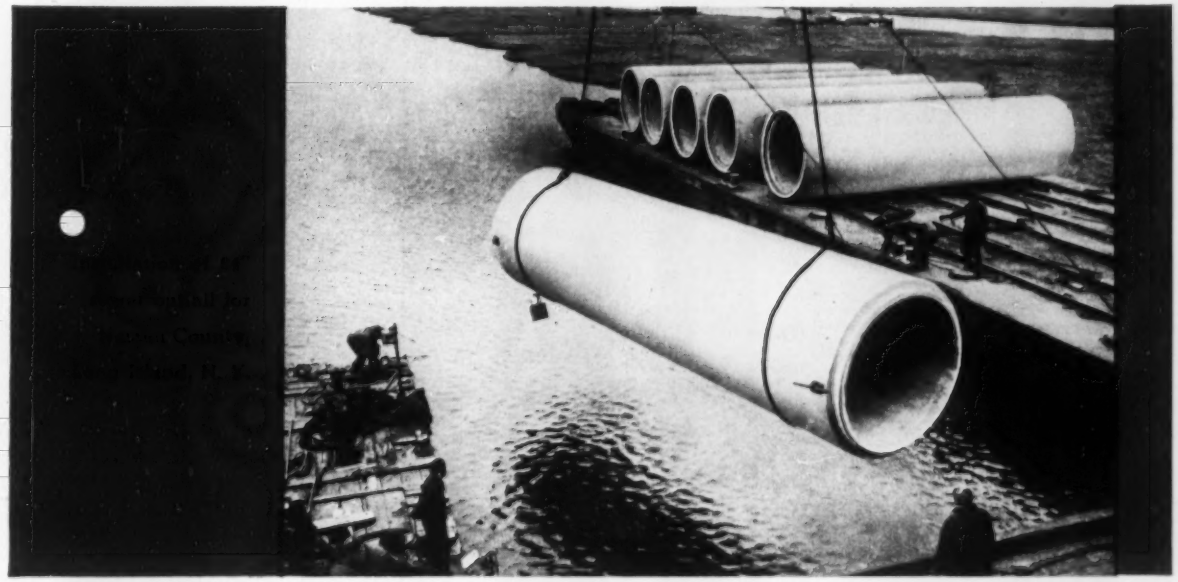
for efficient and easy subaqueous installation



Ideal for water intakes, sewer outfalls and river crossings, Lock Joint Reinforced Concrete Subaqueous Pipe provides the simplest, most effective method of joining pipe under water. The self-centering Rubber and Steel joint can be drawn together accurately and easily by merely taking up the nuts on two draw bolts of a special joint harness. Once the joint has been pulled "home," the compressed rubber gasket seals a permanent, watertight, flexible joint which requires no further bolting, caulking or welding.

Added advantages of Lock Joint pipe are the absence of tuberculation or corrosion, long life, permanent high carrying capacity and minimum maintenance costs. If your pressure pipe project requires pipe 16" in diameter or larger, you owe it to yourself to investigate the unexcelled characteristics offered by Lock Joint.

One of the leading producers of sewer and culvert pipe, Lock Joint Pipe Co. also manufactures pressure pipe for:

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- DISTRIBUTION MAINS
- WATER WORKS OPERATIONS (Pumping and treatment plant piping)
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LOCK JOINT PIPE COMPANY

Established 1905

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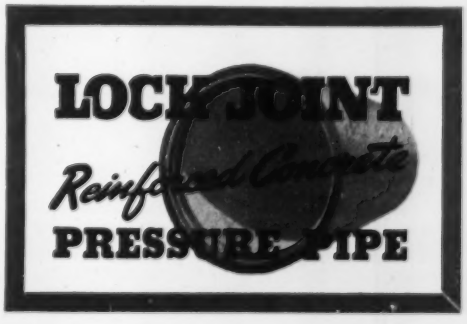
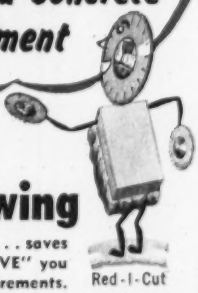


EVEREADY POWR-DRIVE CONCRETE SAW

Ask Your EVEREADY Dealer for the Most Complete Line of Masonry and Concrete Cutting Equipment

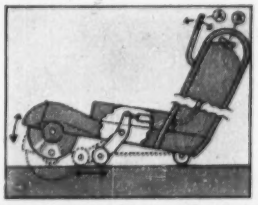


We've taken the PUSH-PULL Out of Concrete Sawing

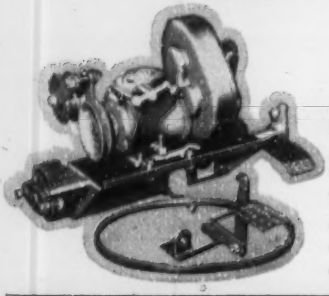
"POWR-DRIVE" smoothly drives saw forward at your controlled speed . . . saves operator effort and increases cutting footage per day. With "POWR-DRIVE" you can instantly regulate the cutting speed to your various cutting requirements. Two abrasive-coated wheels act as a friction drive in contact with both rear saw wheels. "POWR-DRIVE" is engaged or disengaged by a convenient foot lever control. See the amazing Eveready "POWR-DRIVE" Concrete Saw at your local Eveready Dealer.

PATENTED EVEREADY FEATURES

Shown at the right are three exclusive features that make EVEREADY the fastest, most efficient concrete and asphalt cutting saw. Other features are: Dashboard controls for greater ease in operation and maneuvering; blade depth control that permits sawing to a specified depth.

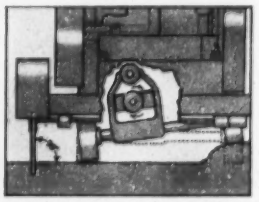


Two easy strokes of Hydra-Eze Handle (A) and hydraulic power lifts blade fast —straight out of cut. Quarter turn of Hydra-Eze Blade Release Lever (B) and hydraulic power feeds blade gently, smoothly into material.



BUY COMPLETE OR ADD THE NEW EVEREADY POWR-DRIVE KIT LATER

The "POWR-DRIVE" Kit comes completely assembled . . . only four holes—four bolts are needed to install the kit on any Eveready Concrete Saw. "POWR-DRIVE" Kits are sold only by authorized Eveready Dealers.



On rough or uneven surfaces—the blade on an EVEREADY Concrete Saw always cuts in a perfect, true, vertical plane. TRI-MATIC BLADE ALIGNMENT prevents binding, twisting, or tilting of the blade as the saw moves over uneven or broken surfaces.

"POWR-DRIVE" cuts MORE Concrete Every Hour . . . Cuts Costs on Every Job! and EVEREADY'S "PROVEN QUALITY" is Your Guarantee for "PROVEN RESULTS"!

EVEREADY Concrete Blades

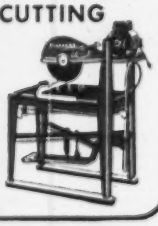
EVEREADY RED-I-CUT DIAMOND BLADES

For faster cutting — PLUS maximum blade life — regardless of the type Concrete or Asphalt cut. Red-I-Cut Blades fit EVERY make and model saw.

EVEREADY TUFFIE CONCRETE BLADES

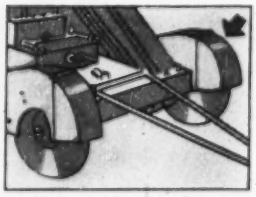
Cut Green Concrete at ONE-THIRD the cost! The NEW "TUFFIE" Abrasive Blade, reinforced with steel wire-mesh, cuts new highway slab — ALL "Green Concrete" slab — at unbelievable savings in labor and blade cost. Your dealer has it NOW!

EVEREADY BRIKSAW FOR MASONRY CUTTING



FREE BOOK

FREE BOOK on Masonry cutting . . . requested by more than 18,000 . . . will be sent without obligation . . . or ask your dealer.



Place blade on either side of saw to cut in corners and confined areas. Blade guard, water hose, and front guide wheel marker assembly are all interchangeable.

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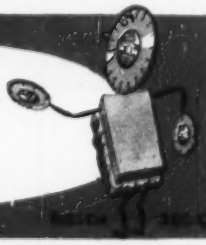


B.F.Goodrich

Tires roll from pit to plant on rock-strewn roads, defy cuts!

THE roads that connect the mining pits with the Charleson Iron Mining Company's plant at Virginia, Minn., are covered with chunks of abrasive rock and stone. Trucks roll over these roads 24 hours a day, 7 days a week, carrying 17-ton payloads.

Tire mortality could be high. This company uses B. F. Goodrich Universal tires, reports they wear longer, pull better, defy rock snags and cuts. Wedge-shaped cleats pull in either direction, protect against dangerous side-slip, give outstanding traction compared to other rock-type tires.

Under the Universal tread is the patented B. F. Goodrich nylon shock shield. Layers of strong nylon cords stretch together to absorb shocks. You save 4 ways: (1) more hours of service (2) more recappable tires and more hours of service per recap (3) increased bruise resistance (4) less danger of tread separation.

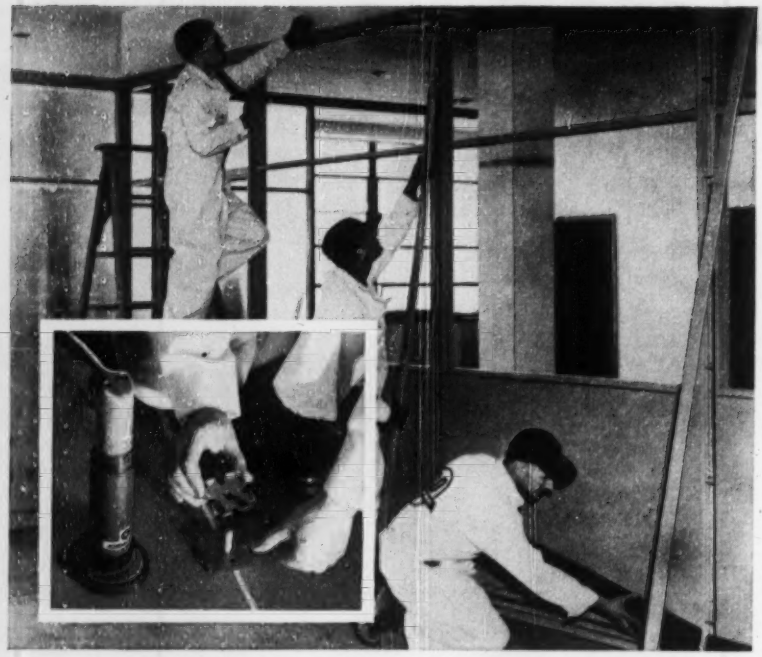
You pay no more

You get all these advantages, yet you pay nothing extra for the exclusive BFG nylon shock shield. Let your B. F. Goodrich retailer show you how Universal tires can save you money. His address is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, Ohio.*

Specify B. F. Goodrich tires when ordering new equipment

TONS OF ROCK crash onto B. F. Goodrich Universal tires that will carry the load up steep hauling roads to the plant. BFG makes a complete line of off-the-road tires.

CHARLESON'S TIRES are 95% B. F. Goodrich, preferred because the specially-compounded tread defies rock bruises. Universal tires are available in All-Nylon or rayon construction.



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These same advantages of RAMSET speed and economy can be gained for almost any work involving fastening into steel or concrete, for new buildings or modernization. Three RAMSET JOBMASTER tools are available for light, medium or heavy work, with 65 Tru-Set Fasteners in six different types to match the specific job requirements.

If you'd like to know more about how RAMSET saves time, money, and trouble, for fastening into steel or concrete, call your local dealer or ask for illustrated manual *Modern Fastening Methods*.

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AN Olin PRODUCT

READER COMMENT

Why they stay away?

SIR: Your report "Class of '54: Going Fast" (ENR April 22, p. 13) contains few startling facts for any civil engineer willing to make an honest analysis of his profession.

As a group, civil engineers have achieved effectively for their clients, but our lack of achievement for ourselves is very great. For instance, our professional methods are so antiquated that our profession is the least inviting to new talent, grown up in a labor-saving era: Our surveying procedures still follow methods used before George Washington's time; we use degrees, minutes and seconds of the ancient mariners, and go through arduous conversions every time we use angular measurements; our field parties laboriously drag a chain, swing sledges, record their operations in penciled notebooks; our drafting tables and stools were old before Samuel Pepys wrote his diaries; our transits and levels have been only slightly modified in centuries.

A check of the records of the U. S. Patent Office supports these criticisms. In the years since 1934, for instance, there have been only 29 patents issued for surveying instruments—and most of these have been modifications or improvements of existing instruments.

Why don't we have transits and levels that record their operation on film? (I mean instruments that are practicable and available for general use).

There are perambulators that operate on hard surfaces with considerable accuracy—in fact with more accuracy than the average chaining party chains. But how many engineering firms will accept such measurements?

There are posture chairs for stenographers in the majority of offices, but there are few engineering offices with such stools—or even padded stools—for draftsmen.

Why do we still use an architect's scale for bridge and building layouts, then have to carry a combination rule in the field to read plans and complete measurements?

We engineers have been inarticulate—and that fact has caused countless troubles, many cases of use of street and building design we have known to be wrong because they cause only further congestion in cities. And we still have few voices that can be raised authoritatively.

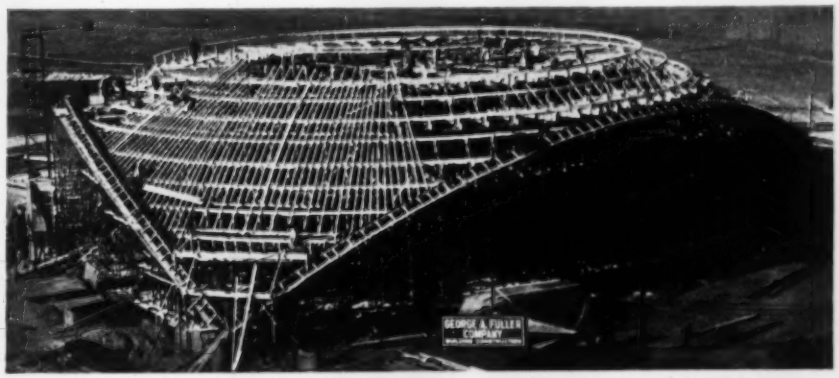
We have also—as a profession—

(*Continued on page 10*)

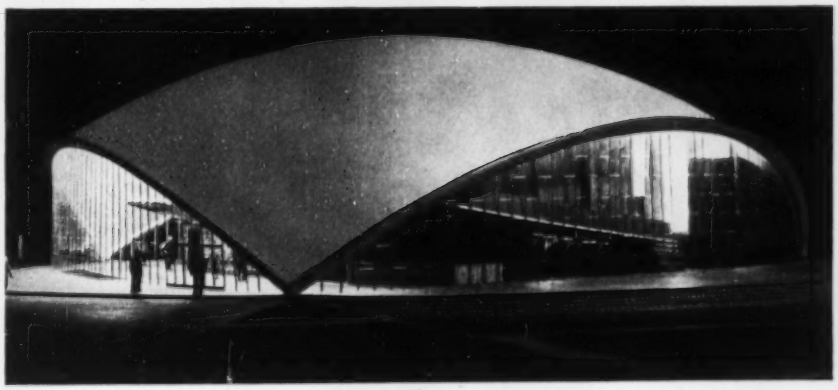
Buildings that make news . . . *(Third of a series)*

Auditorium, Massachusetts Institute of Technology, Cambridge, Mass.

Eero Saarinen and Associates, Architects — *Anderson and Beckwith, Associate Architects*



Above: *Erecting form work for concrete roof structure.* ***Below:*** *Architect's model of completed building.*



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Job... after Job

HENDRIX DRAGLINE BUCKETS

A TYPE AND SIZE FOR EVERY DIGGING PURPOSE

Hendrix Lightweight Dragline Buckets

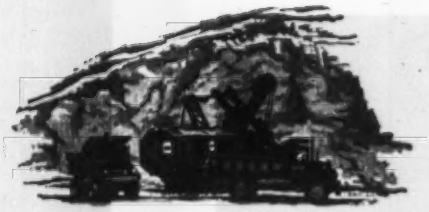
⅜ to 40 Cubic Yards

Hendrix Buckets available without perforations on special order.

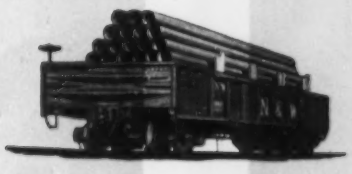
HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

ship builders



quarry operators



pipe manufacturers

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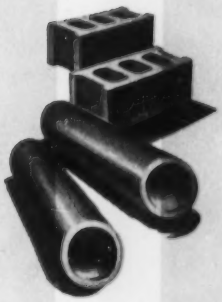

concrete block manufacturers

Basalt Rock Co., Inc., Napa, California, engages in a wide range of industrial operations . . . all requiring the use of heavy power equipment. Both heavy-duty gasoline and diesel engines are operated by Basalt . . . and Shell Rotella Oil is used exclusively as the crankcase lubricant.

Basalt is just one of the many operators of heavy equipment who are getting superior lubrication and reducing costs with Shell Rotella Oil. Here are several reasons why Basalt depends on this one lubricant:

Shell Rotella Oil fights one of the chief causes of engine parts wear. It eliminates cylinder and bearing pitting caused by acid residue from incomplete combustion and low jacket temperatures.

Shell Rotella Oil gives greater over-all economy. Engine parts stay clean and operate efficiently for longer periods. Extending time between overhauls means worth-while savings in labor and parts.

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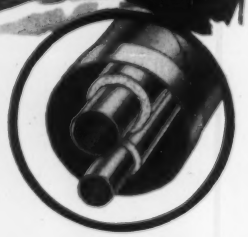

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READER COMMENT

been shortsighted. The emphasis on the shortage of engineers began to be recognized about 1950 or 1951, if I recall correctly. Yet a tabulation of the U. S. Census Bureau reports from 1910 to 1950 shows that the number of civil engineers was decreasing steadily—from 102,000 in 1930 to 84,416 in 1940, for instance. Why have we been so slow in recognizing this trend?

The engineer's inability to express himself and adequately to defend his contentions and designs have reduced his value in the public mind, and created the unfortunate situation disclosed by income and salary surveys that show that civil engineers are at the low end of pay scales.

Why should the younger generation seek the civil engineering profession? It can find other jobs that offer easier starts in making a living.

DON V. PURINGTON
Civil Engineer
Houston, Tex.

CALENDAR

American Society for Testing Materials, 57th annual meeting, Sherman and Morrison Hotels, Chicago, Ill., June 13-18.

American Society for Engineering Education, University of Illinois, Urbana, June 14-18.

American Society of Civil Engineers convention, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 14-19.

American Institute of Architects convention, Statler Hotel, Boston, Mass., June 15-19.

Conference on Thin Concrete Shells, Massachusetts Institute of Technology, Cambridge, Mass., June 21-23.

Third International Water Supply Congress, London, England, June 20-23 (Secretary General, L. Miller, 34 Park Street, London W 1).

Pan American Congress on Roads, Caracas, Venezuela, July 11-21.

Inter-American Congress of Sanitary Engineering, Sao Paulo, Brazil, July 25-31.

Conference on new developments in engineering design, Virginia Polytechnic Institute, Blacksburg, Va., Aug. 4-6.

National Council of State Boards of Engineering Examiners, annual meeting, Hotel Saint Paul, St. Paul, Minn., Aug. 26-28.

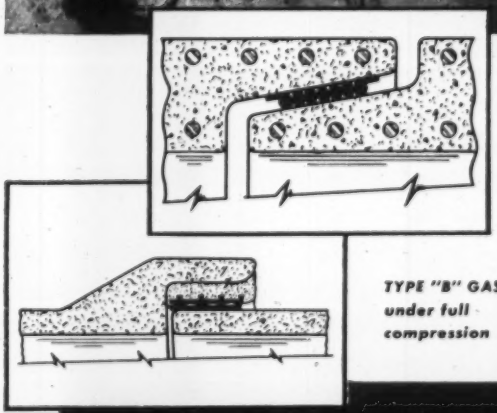
American Water Works Assn., fall meeting, Montauk Manor, Montauk, N. Y., Sept. 9-10.

New England Water Works Assn., Dixville Notch, N. H., Sept. 13-15.

National Highway Conference of County Engineers and Officials, ARBA, Deshler-Hilton Hotel, Columbus, Ohio, Sept. 13-15.

Society for Experimental Stress Analysis and International Congress and Exposition: Bellvue-Stratford Hotel, Philadelphia, Pa., Sept. 21-23.

ROOTS CAN'T PENETRATE TYLOX JOINTED SEWERAGE AND DRAINAGE LINES



TYPE "A" GASKET under full compression

TYPE "B" GASKET under full compression

Engineers and contractors are assured of *permanently* rootproof joints when their tongue-and-groove, or bell-and-spigot pipe installations are protected with Tylox *Flexible* Rubber Gaskets.

Tylox seals by compression, not adhesion—as in the case of bituminous or mortar jointing materials. When the pipe is shoved home, Tylox "packs" the joint's annular space tight by mechanical action, and the natural resilience of the rubber *keeps* it tight . . . Tylox won't shrink or crumble, to leave spaces in the joint for the entrance of ground water or roots.

Tylox *flexibility* which assures rootproof and leakproof joints, also permits pipe laying in wet trenches, and immediate backfilling . . . Tylox compensates for angularities in the line, and the presence of mud or water during jointing has no effect on its seal.

Tylox is made of a specially compounded rubber that *stays* flexible and is resistant to sewage and industrial waste acids and alkalies. It won't corrode or deteriorate. Underground, and under compression, Tylox Joints outlast the pipe itself.

Call for Tylox jointing gaskets on your next pipe project. Assure faster pipe laying, and *know* your line is permanently protected against leakage or root penetration.

HAMILTON-KENT
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1787

MAKING JOINTS WITH TYLOX RUBBER GASKETS IS AS SIMPLE AS A B C

Cement tongue and snap on TYLOX gasket.

Lubricate sliding surfaces with TYLOX cement.

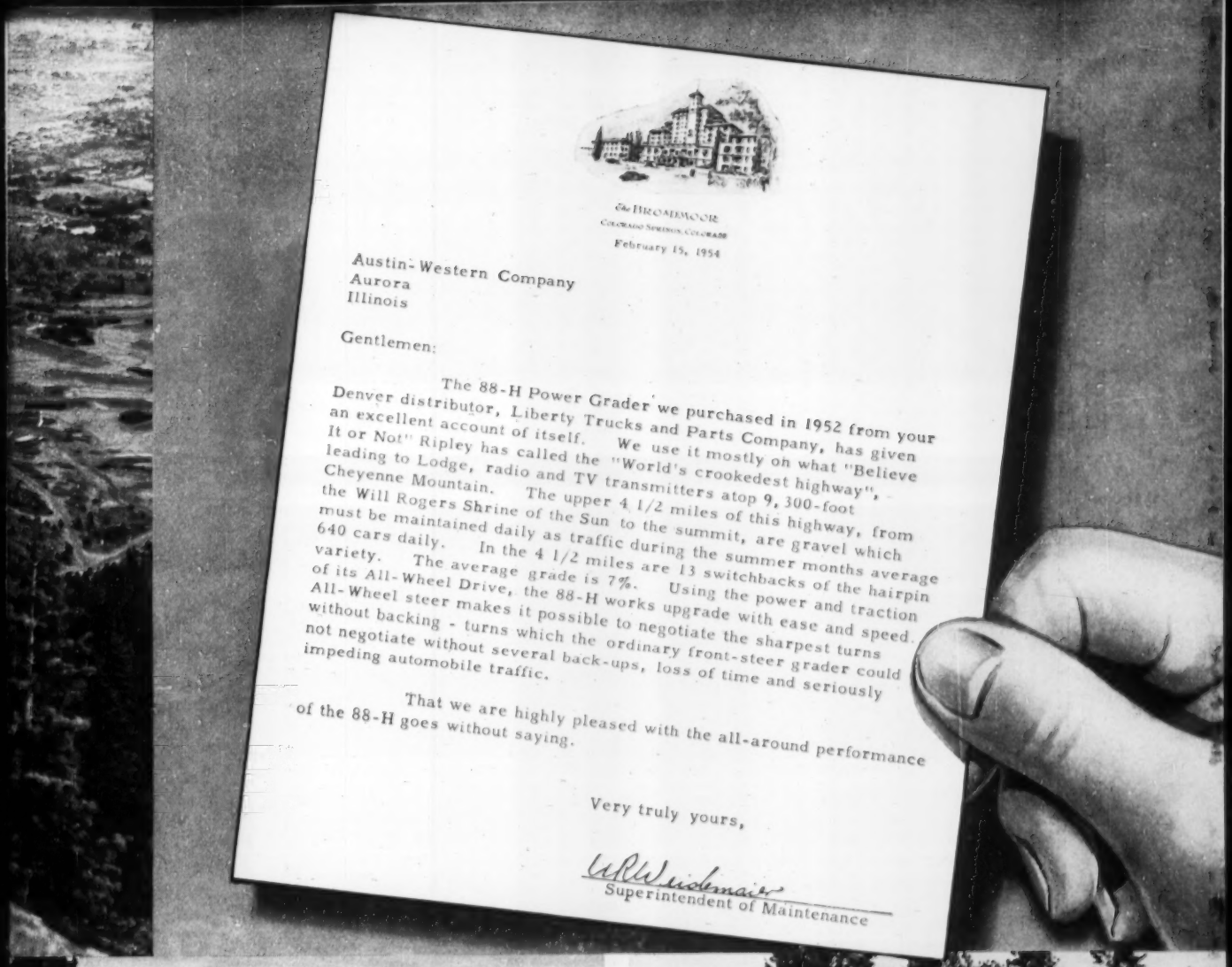
Shove the pipe home to line and grade.

Lying directly at the foot of towering Cheyenne Mountain, the Broadmoor with its private golf course, lake, ice palace and rodeo stadium is one of the famous resort hotels of the world.

THE GRADER THAT GOES MOUNTAIN CLIMBING

Grades too steep and curves too sharp for the ordinary rear drive, front steer motor grader are all in a day's work for the Austin-Western Power Grader, thanks to the greatly increased traction and power-at-the-blade of its exclusive All-Wheel Drive, and to the unequalled "turnability" of its exclusive All-Wheel Steer.

To the average owner, not faced with the problem of climbing mountains, ability to *work successfully upgrade* means corresponding ability to *move more material on the level* . . . ability to negotiate mountain curves spells maneuverability that saves time on every job.



The BROADMOOR
COLORADO SPRINGS, COLORADO

February 15, 1954

Austin-Western Company
Aurora
Illinois

Gentlemen:

The 88-H Power Grader we purchased in 1952 from your Denver distributor, Liberty Trucks and Parts Company, has given an excellent account of itself. We use it mostly on what "Believe It or Not" Ripley has called the "World's crookedest highway", leading to Lodge, radio and TV transmitters atop 9,300-foot Cheyenne Mountain. The upper 4 1/2 miles of this highway, from the Will Rogers Shrine of the Sun to the summit, are gravel which must be maintained daily as traffic during the summer months average 640 cars daily. In the 4 1/2 miles are 13 switchbacks of the hairpin variety. The average grade is 7%. Using the power and traction of its All-Wheel Drive, the 88-H works upgrade with ease and speed. All-Wheel steer makes it possible to negotiate the sharpest turns without backing - turns which the ordinary front-steer grader could not negotiate without several back-ups, loss of time and seriously impeding automobile traffic.

That we are highly pleased with the all-around performance of the 88-H goes without saying.

Very truly yours,

W. R. Widemair
Superintendent of Maintenance

Entering the hairpin switchback shown in the long shot at the left, the "88-H" steers front and rear wheels in opposite directions to complete *without backing* a turn that would require several time-consuming backups with a front steer grader of comparable size.

Heavy traffic on the "world's crookedest highway" makes it essential that the gravel surface be maintained in perfect condition every hour of the day. Like all Austin-Western Power Graders, the "88-H" has ample traction for work uphill as well as downhill.

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Road Rollers · Hydraulic Cranes

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Construction Equipment Division

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VICKERS® HYDRAULICS

Dart Model 60 Truck is shown carrying full 75-ton payload.

This Dart behemoth with a gross vehicle weight of 240,000 lb is said to be the largest truck in the world. It has two engines totaling 700 horsepower. Everything about it is on a colossal scale.

A new hydraulic circuit was developed by Vickers expressly for Model 60. The driver steers this truck with no more effort than he would a passenger car as the steering gear merely actuates the valve that controls the flow of oil to the steering cylinders. Twin cylinders provide 50,000 lb steering force (at 1000 psi oil pressure) for the dual front wheels.

Dart is thoroughly familiar with the many advantages of Vickers Hydraulic Power Steering having used it since 1938.

Vickers hydraulic equipment is available for all types and sizes of mobile equipment. Ask for new Catalog M-5101.

Vickers hydraulic power dumps the load; twin hoists are rated at 130,000 lb push at 1000 psi oil pressure.

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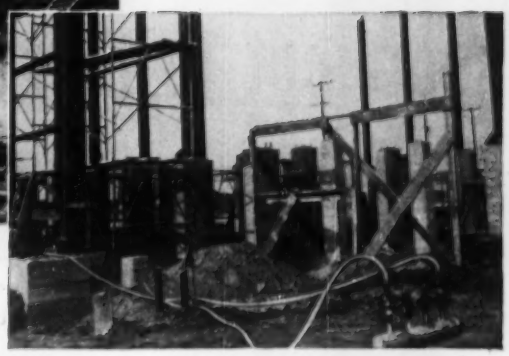
6526

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Another tough construction job proves how U.S. Royal Cord Air Hose can take a kicking around



The above photos show U.S. Royal Cord Air Hose at work on another big construction job—a $10,000,000 addition to an oil refinery in California. A fast-moving, closely-budgeted time schedule puts plenty of rough treatment on every foot of this hose, yet the men on the job "swear by it." So also does the construction company—*it will use no other air hose.*

The simple fact is that U.S. Royal® is the only cord air hose built like a tire—to take punishment like a tire. The cord plies floated between layers of high-gum rubber are resistant to the shearing action caused by external blows—an advantage not found in conventional braided reinforcements. It has been run over by 50-ton cranes on tractors, and trucks carrying steel girders or gravel. Yet no damage resulted, even though *no cribbing was used.* The men just don't have the time to "coddle" hose. And despite its great strength, U.S. Royal is amazingly flexible and easy to work with. The Neoprene tube of U.S. Royal Cord Air Hose is highly resistant to oil.

You can count on this: U.S. Royal Cord Air Hose will save you time and work, and pay for itself over and over. On job after job it will *deliver*—and last longer than you've thought any air hose could last. Get in touch with any of our selected distributors of any of our 27 District Sales Offices, or write to the address below.

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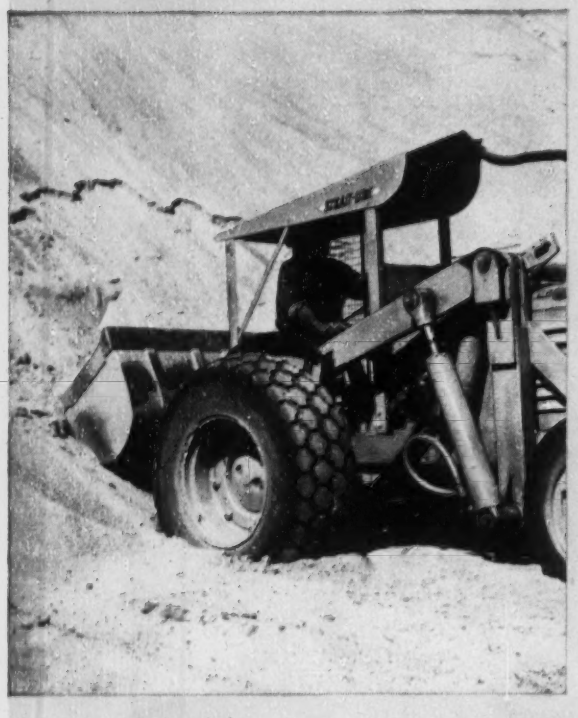
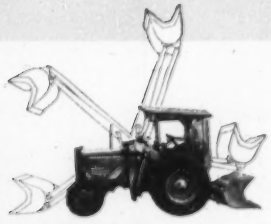


short cut to bigger profits...



OLIVER DIESEL AND STRAIT-LINE LOADER!

With this bulldozer attachment the Strait-Line becomes even more profitable. Rear-carried bucket adds traction that makes heavy dozing easy. Blade does not interfere with loader operation. Other attachments include lifting boom, fork, and a variety of buckets from ¾- to 2-yd. capacity.

Diesel economy and short-cycle loading—that's how the Oliver diesel tractor and Strait-Line loader short-cut to more profit on any loading job. Compare this unit with other loaders...it digs in *front* or *rear* and loads in front...always working in a straight line. The rear-carried bucket increases traction, makes steering easier and permits bigger loads.

Now add the ruggedness and economy of either the Oliver "77" or "88" diesel tractor. Here is a 6-cylinder diesel you can count on for quick starts and down-right lugging ability to do more work at less cost. Get acquainted with this unit by driving it yourself. Check its features and you'll see why you get more yard-age at a lower cost with an Oliver diesel and Strait-Line loader. See your Oliver Industrial Distributor.

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400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel

and crawler tractors

Vol. 152, No. 23

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THE CONSTRUCTION WEEK

THE WEATHER—Here's the U.S. Weather Bureau's 30-day forecast for the month of June (to be read with tables of normal ranges in ENR May 20, p. 31):

Temperatures will average below seasonal normals over the northern half of the country, from the Great Lakes westward; above normal in the East, South and Southwest.

Precipitation will exceed normal between the Appalachians and the Continental Divide (except in the Gulf States where it will be normal); precipitation will be subnormal in the Far Southwest and South Atlantic States. Elsewhere, near normal.

QUICK COVER—It'll be worth watching New York's Tishman Realty & Construction Co., in its attempt to enclose a 22-story building in one working day.

The date set is June 21. Building is being built on Park Ave. at East 57th St.; Tishman expects to place about 700 two-story aluminum panels (made by General Bronze Corp.) between 6 am and 8 pm enclosing the building's 205,000 sq ft of floor area.

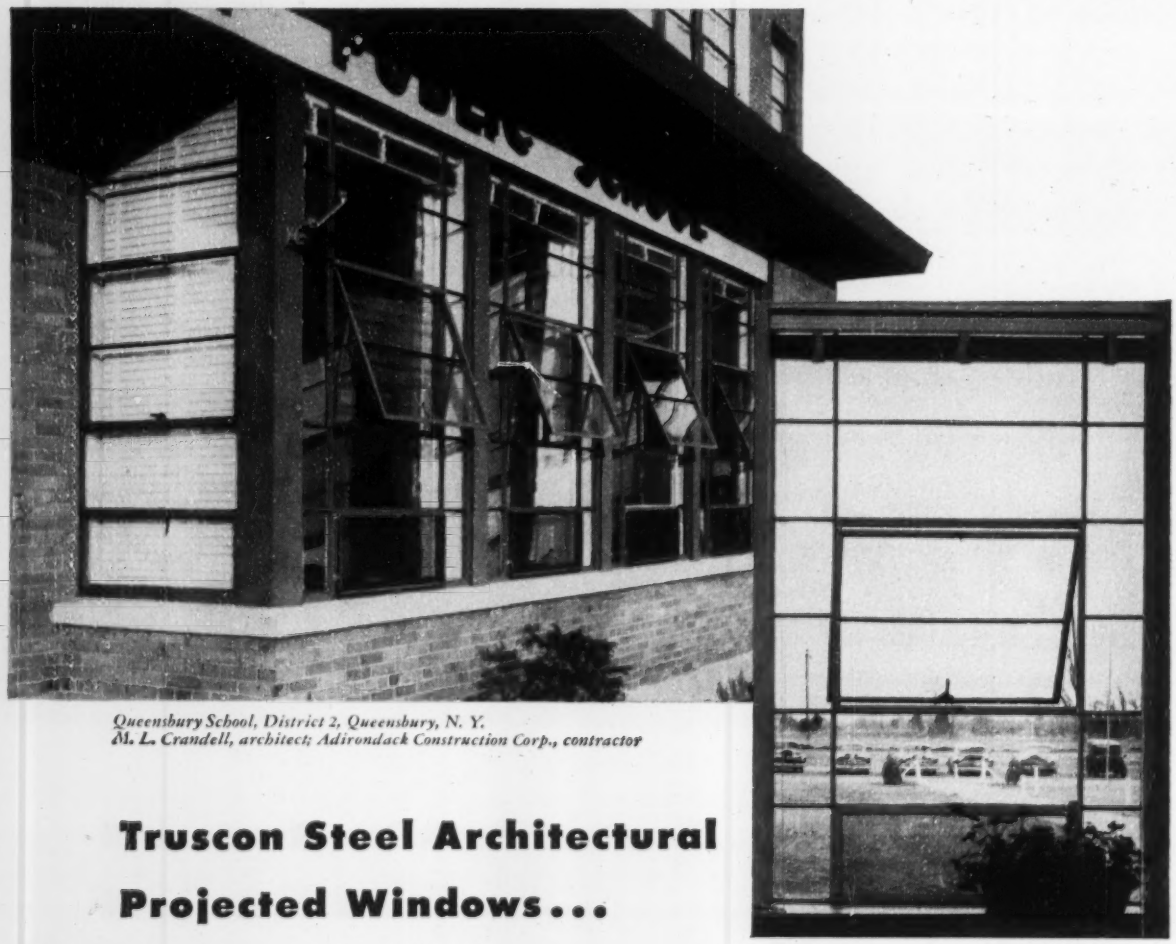
TERMITE TRACKER—A sound-detection unit that will make life uncomfortable for termites has been developed by Roy Pence, of the University of California's Department of Entomology. It might eliminate destructive bore-and-chisel probing now necessary to find the insects. With Roy Weems, Pence has developed a sound device so sensitive that it is said to detect termite footsteps, clicking of the insects' jaws.

POLLUTION AGREEMENT?—Aiming at tighter enforcement, Wisconsin and Michigan officials will meet July 29 at Houghton, Mich., to sign an agreement on standards for control of stream pollution.

The meeting will be a part of a developing pattern of agreement among Wisconsin, Michigan, Minnesota, Illinois, and Iowa, to control pollution. The states are attempting to set up uniform standards and penalties—to remove a repeated threat by industry of removing to a neighboring state if enforcement gets too tough.

SEAWAY ENGINEERS?—At least two—and perhaps more—of the seven key men in the St. Lawrence Seaway Corp. authorized by Congress should be engineers says the National Society of Professional Engineers.

T. Carr Forrest, Jr., president of NSPE, told President Eisenhower (by telegram) that successful design, construction and administration of the Seaway "will require the best of professional engineering talent." Forrest urged that the administrator and deputy administrator of the corporation, and at least two or more of the five-man advisory board, be selected from the 180,000 registered professional engineers in the U. S.



Queensbury School, District 2, Queensbury, N. Y.
M. L. Crandell, architect; Adirondack Construction Corp., contractor

Truscon Steel Architectural Projected Windows...

SUPERIOR VENTILATION • PLUS • FULL WEATHERING CONTACT

Here's the architectural projected window that cuts air infiltration to the bone! Integral baffles of Truscon's own special section provide casement-type full weathering contacts. It's a Truscon exclusive in windows of this classification.

Specify these quality windows wherever you want ample ventilation and freedom from drafts. That makes them especially adaptable to school and hospital design. Outward projecting ventilator deflects rain. Lower, inward projecting ventilator deflects air currents upward, eliminating drafts. Cleaning is easy . . . from inside.

Rigidity is assured by the heavy casement-type vent frame section. Hardware is solid bronze.

Architecturally handsome, these Truscon windows add a note of distinction to buildings of all types. Specify them with complete confidence in their highest quality. Details, sections, and sizes in Sweet's; or write Truscon for more facts.

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TRUSCON MARK OF MERIT PRODUCTS

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WASHINGTON OBSERVER

Log-jam on Korean construction has been broken—and the feeling is that U. S. construction firms are going to get a big share of the contracts. Total U. S. expenditures are likely to run to a billion dollars eventually. Foreign Operations Administration is prime U. S. agency involved.

Officials see about $70 million worth of contracts let this year. Bechtel Corp. already has job of building three power plants totaling about $30 million. Bidding has begun on a $23-million urea fertilizer plant. International Engineering Co., San Francisco, has contract to repair power dam. Bidding is slated to be opened soon for cement and glass plants totaling around $8 million.

A variety of other construction projects are in the offing including a survey of power sites, railroad construction, new government buildings, and rehabilitation of coal mines.

Big roadbuilding, bridge-building, and port expansion programs are in the works. But Korean firms working with U. S. Army Engineers are expected to carry out all of this.

•

The government's new lease-purchase program for new private construction of federal buildings, post offices and the like will be in operation within a year. Congress is about to finish up legislation on a method by which some $3 billion of construction can get started under lease arrangements, rather than by congressional lump-sum authorizations. The General Service Administration and the Post Office Dept. are readying for the go-ahead once Eisenhower signs the bill.

•

Upper Colorado water legislation is getting bogged down. Southern California water opponents and conservationists are beginning to boast the bill won't get through Congress this year. Interior Secretary McKay hasn't given up—he endorsed it strongly again over the weekend—but hopes of getting the project under consideration in the Senate are dimming. Senator Millikin, No. 1 proponent, is too busy with taxes and Social Security to give full time to the matter; and opponents are getting new wind to make the fight they lost by only one vote in the House committee. House debate on the bill is being delayed.

•

College dormitory construction should continue upward if schools are to take care of the increase in students now charted to continue through 1960. Revenue bonds are being bought more and more by private investors—but federal market for these bonds will continue to support construction. Housing chief Cole predicts $100 million of new building during next 12 months, with three-fourths of it financed privately.

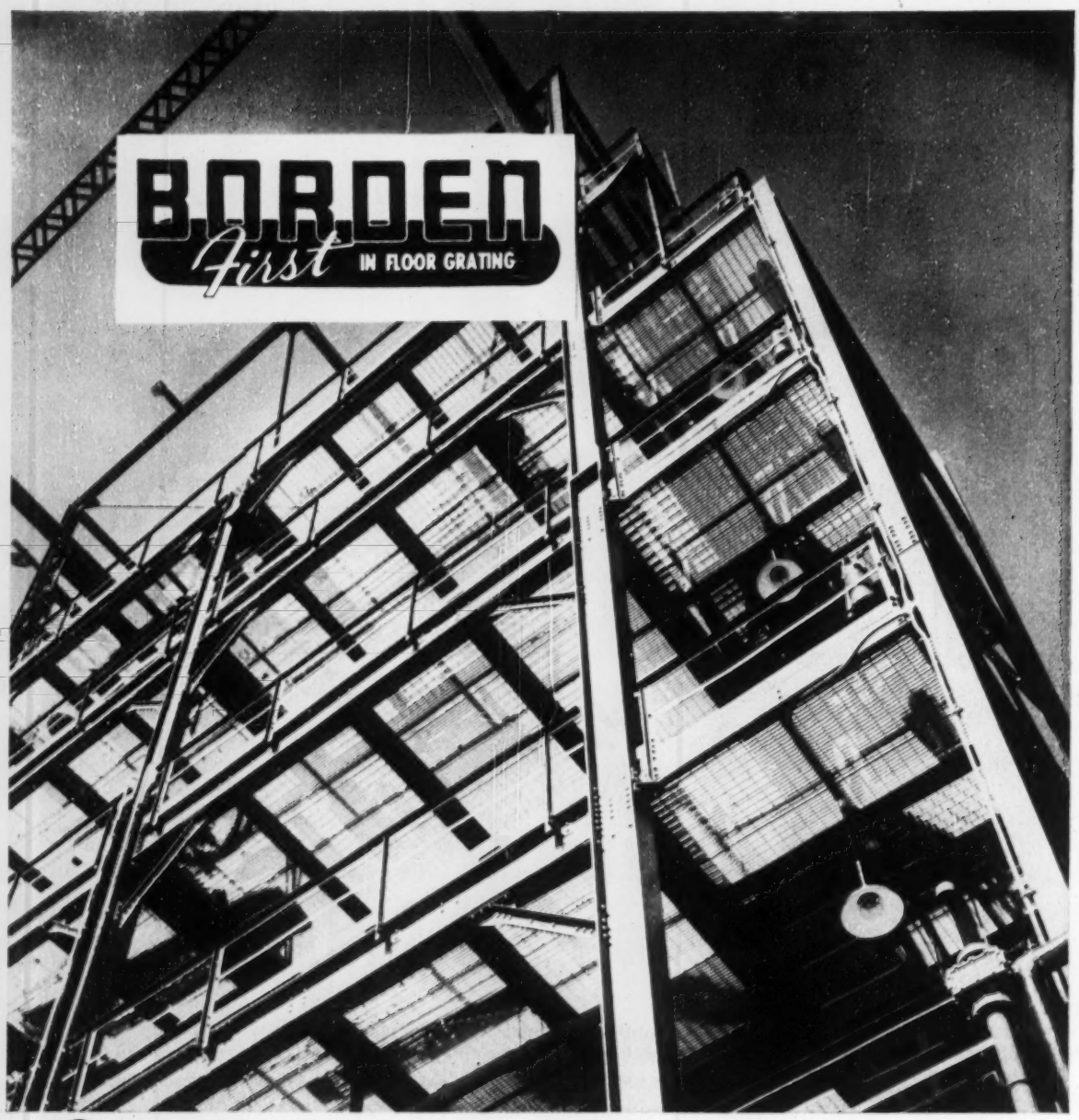
•

Construction budgets for federal agencies are nearing final stage. Senate is voting to cancel out cuts made by the House, in many cases.

Reclamation construction would be $11 million more than President asked under version voted by the Senate committee. That's $18 million more than the $114 million the House voted.

REA lending funds for power lines were increased on the Senate floor. Committee approved the $100 million voted by the House. Senate boosted this to a $135 million—$80 million more than Eisenhower originally had asked for.

House committee is fighting Senate increase in TVA funds for construction by checking up on TVA bookkeeping; they claim they've found some figures that will enable their lower figure to stick.



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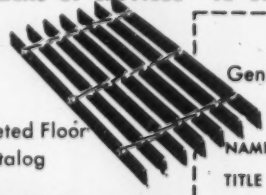
A. **BORDEN ALL/WELD floor grating in this installation furnishes all the above features — PLUS — it is self-cleaning and Borden All/Weld floor grating is solidly welded without cracks or crevices — to eliminate corrosion.**



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TITLE .....

COMPANY NAME .....

ST. AND NO. .....

CITY AND STATE .....

Midwest toll roads are rolling along

Nine projects totaling over 1,000 mi and costing nearly $1.3 billion mean big business for four Midwestern states

J. R. Carr
Associate Editor

The next three years should prove to be the "golden era of toll road construction" in the Midwest. Four states—Kansas, Kentucky, Indiana and Illinois—have ambitious plans for a total of 1,036 mi of toll highways to cost $1,266,500,000.

Some of the projects are in the early planning stages but others will enter construction stages next month. Kentucky is out in front. It will take bids June 18 on initial construction of its 40-mi, $38.5-million turnpike. Indiana will follow right along, awarding the first contracts on its 156-mi, $280-million east-west toll road next month.

Kansas is in third position. It will sell bonds this September for its 234-mi, $140-million turnpike. Final designs then will be rushed so that construction can start next season.

Illinois is the last to join this Midwest toll road parade. But it has by far the most ambitious plans of the four states. It is scheduled to build five toll roads totaling 465 mi and costing about $583 million.

• **Plenty of work**—All this adds up to big business for construction. Once, bonds are sold to finance a toll road all haste is made to complete designs and get the work under contract. Similarly, construction schedules are tight, demanding large investments in road-building equipment, together with ample crews to operate them.

Large interest charges on the tremendous investment in bonds is the whip hand that tolerates no dilly-dallying in opening the toll road.

• **Sooner than you think**—Motorists will start using these toll roads sooner than they might think. Indiana expects to complete the eastern portion of its east-west toll road by October of next year. This coincides with the scheduled completion of Ohio's 241-mi, $326-million east-west route.

By the end of next year Kentucky expects to open its turnpike to traffic. Kansas will follow suit a year later, and Illinois probably will be operating some of its toll roads by the end of 1957, if not sooner.

Each of the four states is going ahead with its own projects, with little or no formal liaison as to route and construction details. Some design details are similar, but not all. For instance, there is no standard width of the median dividing the two opposing pavements. And, incidentally, the states don't even agree on terminology. Some call them turnpikes, while others call them toll roads or toll highways.

• **Setting a pattern**—Viewed objectively, however, the nine toll highways develop a definite pattern for future development by neighboring states.

Indiana's east-west toll road is the connecting link in the toll system from Chicago to points east. Its newly announced Chicago-Indianapolis toll road, together with Kentucky's 40-mi turnpike are important links in the proposed Chicago-Miami superhighway.

Kansas' turnpike will be the gateway to the Southwest. It will connect with proposed toll roads to Oklahoma City and Texas. Missouri, which as yet has no turnpike legislative authority, is the bottleneck in toll road construction between Illinois and Kansas.

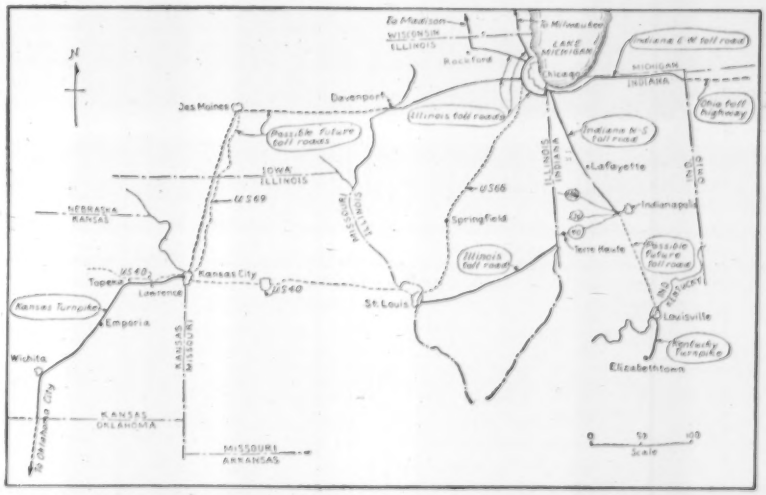
The five Illinois turnpikes were selected on their individual merits but they, too, will develop a pattern for neighboring states to follow. One heads toward Milwaukee, and another toward Madison, Wis. A third route points toward Des Moines, Iowa, while a fourth traverses the southern part of the state from East St. Louis toward Indianapolis, Ind. Construction of these four routes will be an added incentive for Illinois' neighboring states to extend them within their borders.

• Kentucky's program—an open-ended indenture

Construction of Kentucky's "initial turnpike"—from Louisville south to Elizabethtown—will get under way this summer. Bids were received this week on $38.5 million of bonds to finance the 40-mi project, and bids will be taken on June 18 for the first grading contracts.

Bridge construction bids will be received in August, and on paving and other miscellaneous construction in November. The entire project is scheduled to be completed ready for traffic by Jan. 1, 1956.

What makes this fast action possible is the fact that legislation



PATTERN OF MIDWESTERN TOLL ROADS takes shape as Indiana plans to start construction next month on its east-west route and begins planning a north-south route connecting Indianapolis with Chicago. Kentucky will award initial turnpike construction contracts this month. Kansas will sell bonds for its turnpike in September, and Illinois will start making engineering studies and traffic-and-earnings reports on five toll roads within the next 30 days.

adopted in 1950 authorized the Kentucky State Highway Department to ". . . construct, maintain, repair and operate turnpike projects . . . and to issue turnpike revenue bonds of the Commonwealth of Kentucky, payable solely from tolls and revenues pledged for their payment, to pay the cost of one or more turnpike projects."

• **Only a start**—It also made turnpike construction an "open-ended indenture." It permits the issuance of more bonds to build turnpike extensions after two years' operation of a completed turnpike providing the net revenue during that period reaches the original anticipated amount.

To date, according to R. N. Bergendoff, directing partner on the project for Howard, Needles, Tammen and Bergendoff, general consultants on the turnpike, final plans are 75% finished. Final field surveys have been completed for design purposes, and a considerable amount of right-of-way has been purchased.

Designs are being prepared by three groups of consulting engineers, who also will furnish field engineering and inspection. They are: J. Stephen Watkins, Lexington; Tecon Engineers, Inc., and Berger Associates, Louisville; and Hazelet & Erdal, Louisville.

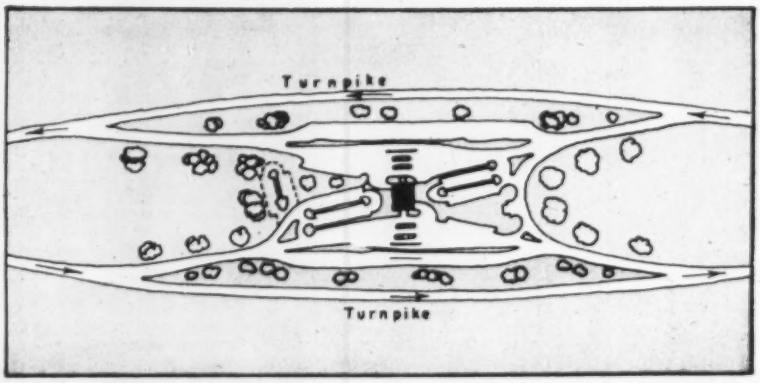
• **Fast designs**—One of the unique features of Kentucky's turnpike construction is the extensive amount of planning and design that could be accomplished prior to the sale of the bonds. Under its authority, the Kentucky State Highway Department advanced $2 million, prior to the sale of bonds, for preliminary surveys, right-of-way acquisition and final design plans.

This was in contrast with its neighbor, Indiana, which couldn't start designs or buy right-of-way until toll highway bonds were sold.

There will be only two toll collection facilities—one at Elizabethtown and one near Shepherdville about 15 mi south of Louisville. Entrance and exit from the turnpike will be limited to the two terminals and five intermediate points, two of which will have complete interchange facilities.

At Louisville, the city and the State Highway Department are planning construction of a north-south expressway through the central part of the city to the Municipal Bridge over the Ohio. As now located, this expressway would serve as an extension of the turnpike to the river.

• **Service areas**—Another feature not commonly found on turnpikes is the placing of service areas between the two opposing 24-ft pavements. Careful consideration has been given to the safety of traffic entering and leaving these areas, of which there will be two.



SERVICE AREAS for both Kentucky and Kansas turnpikes will be built between the roadway pavements, for economy of construction, operation and maintenance, and the elimination of duplicate facilities.

Adequate signs and long decelerating and accelerating lanes will be provided at both service areas. Points in favor of building the service facilities between the pavements are economy of construction, maintenance and operation, and eliminating of duplicating facilities.

• **Estimated costs**—Kentucky's 40-mi turnpike is estimated to cost $34.7 million, exclusive of interest during construction, and bond discount. Of this amount, $26.5 million is for construction; $2 million for right-of-way; $2.7 million for engineering; and $3.5 million for administration, legal and contingencies.

Earthwork will cost about $8 million; pavement and stabilized shoulders, $7.9 million; 40 major structures, $4.9 million; drainage structures, $2.4 million; toll and service facilities, $1 million; protective devices and miscellaneous construction, $2.3 million.

• **Design features**—Design speed, in general, is 70 mph. Accelerating lanes will be 1,000 ft long and decelerating lanes 550 ft. The twin 24-ft roadway pavements will be 9-in. reinforced portland-cement concrete on 6 in. of granular subbase. A 10-ft bituminous macadam shoulder will be provided along the outer edge of each pavement.

The pavements will be separated by a 20-ft median strip. The central 12-ft width will be a mountable raised median, sodded. The remaining 4-ft strips between pavements and raised median will be treated the same as the outside shoulders.

• Kansas Turnpike—gateway to the Southwest

Due to its geographical location the 234-mi., $140-million Kansas Turnpike well might be termed the "gateway to the Southwest."

With its eastern terminus about one mile inside the city limits of Kansas City, Kan. (18th St. and Muncie Blvd), the four-lane divided turnpike will extend westward with interchanges at the industrial city of Bonner Springs, Lawrence (State University) and two at Topeka (State Capital).

The route then angles southwest through Flint Hills of the Sunflower State, with interchanges at Emporia, El Dorado and two at Wichita. The final leg then runs due south, with an interchange at Wellington and terminating at the Oklahoma border. Oklahoma has authorized its turnpike authority to build a new turnpike from that point to Oklahoma City and from there south to the Texas border near Wichita Falls, Tex. Oklahoma also has authorized an extension of the Turner Turnpike from Tulsa to the Missouri line near Joplin.

• **Kansas City improvements**—At the eastern end, the Kansas Turnpike will extend on to Muncie Blvd. The Kansas State Highway Dept. and Kansas City propose to widen Muncie Blvd. to a four-lane divided trafficway—with provisions for addition of two more lanes—all the way to a connection with the Intercity Viaduct across the Kansas River.

This will speed turnpike traffic through Kansas City, Mo., and Kan. Motorists crossing the Intercity Viaduct into Missouri will travel the improved Sixth St. Trafficway and go east to St. Louis or they can cross the Missouri River by the Pasco Toll Bridge—to be completed this year—and head for Chicago or Des Moines on the Missouri State Highway system.

As the network of toll roads extends westward from Chicago one route probably will extend to the tri-cities of Davenport, Iowa, and Moline and Rock Island, Ill. An extension of this route on west would carry it to Des Moines.

• **Kansas City-Des Moines link**—By that time it well might be feasible to construct a toll road between Des Moines and Kansas City. This would close the gap and give a continuous toll road from Chicago to Texas.

Missouri may prove to be the bottleneck in this development, since it does not yet have any toll road enabling legislation. A bill to create a turnpike authority was defeated during the last session of the legislature. Toll road proponents are hopeful that such legislation will be adopted when the Missouri legislature meets next year.

Should Illinois and Iowa, however, construct a toll road from Chicago to Des Moines, there would be considerable demand for a high-speed highway capable of carrying traffic between Des Moines and Kansas City. This might be accomplished by improving that portion of U. S. Highway 69 in Missouri and Iowa that connects the two cities.

In several respects, the Kansas Turnpike will be similar to Kentucky's. It will have two 24-ft pavements with 12-ft shoulders along the outer edge of each pavement. The type of pavement has not yet been decided. The roadway pavements will be separated by a median strip 15 to 20 ft wide. By contrast, Indiana's east-west toll highway has a 56-ft median containing an 8-ft shoulder along the inner edge of each pavement.

Another similarity between the Kansas and Kentucky turnpikes is that service and concession areas will be constructed in a widened median zone.

• **Feasibility reports**—A final feasibility report on the location, engineering features and construction costs is being prepared by Howard, Needles, Tammen and Bergendoff, general consultants on the project, under the direction of Josef Sorkin, directing partner on the project. A feasibility report on potential traffic and earnings also is being prepared by Coverdale and Colpitts. Both reports are scheduled for completion by Aug. 1 of this year.

Bonds totaling $140 million to finance the 234-mi project from Kansas City to the Oklahoma-Kansas line are expected to be sold in September. The preparation of designs and contract estimates, as well as supervision of construction will be contracted to several consulting engineering firms. It will take two construction seasons to build the turnpike which is scheduled for completion, ready for traffic by the fall of 1956.

• **Construction costs**—Of the $140 million of bonds to be sold for financing the Kansas Turnpike, about $97 million will be spent for construction. Largest single items are $35 million for pavement and subbase; $26 million for bridges and grade separations, including a $3-million bridge over the Kansas River; $18 million for grading; and $7 million for culverts and drainage.

Right-of-way will cost about $6.5 million; administration, engineering and legal fees, $8 million; maintenance equipment, $800,000; interest during construction, bond discount and interest reserve, $14 million; and contingencies, $13.7 million.

The turnpike will be designed for 70 mph. Horizontal curves will be limited to 3 deg, and grades to 3%. Minimum sight distance will be 725 ft.

• Indiana plans second toll road

With construction to be started next month on its first toll road, Indiana has announced plans for building a second one.

The first one is a 156-mi, $280-million east-west route, connecting with Ohio's east-west toll highway and terminating at a junction with U. S. Highways 12 and 20, at the Illinois-Indiana state line.

The second project—recommended by the Indiana Toll Road Commission and endorsed by Governor Craig on May 26—is a north-south route. It will be 141 mi long and cost an estimated $225 million. A civil engineering report covering location and estimated construction costs, and a survey on traffic and earnings probably will be completed by Oct. 1, according to Albert J. Wedeking, executive director of the commission.

The northern terminus of the north-south toll road will be a connection in Hammond with the east-west route. A second connection probably will be made with the present four-lane divided Tri-State and Calumet expressways, leading into Chicago's Loop.

• **Indianapolis to Chicago**—Angling southeast from Hammond, the toll road will pass to the west of Rensselaer and Lafayette, terminating at U.S. Highway 40 about 15 mi west of Indianapolis. Connections with the Hoosier capital would be by U.S. 136, U.S. 36 as well as U.S. 40. This will provide a direct, high-capacity highway from Chicago to Indianapolis.

Eventually the toll road may be extended to the Ohio River opposite Louisville, connecting with Kentucky's initial turnpike as part of a projected Chicago-Miami superhighway.

No completion date has yet been established for Indiana's north-south toll road. But the eastern 70 mi of its east-west route are expected to be completed ready for traffic by October of next year. This coincides with the completion date of Ohio's 241-mi, $326-million east-west toll road, which connects the Pennsylvania Turnpike.

• Illinois plans five

The Illinois State Toll Road Commission plans on building not just one, but five toll turnpikes. Moreover, their construction may be carried out simultaneously.

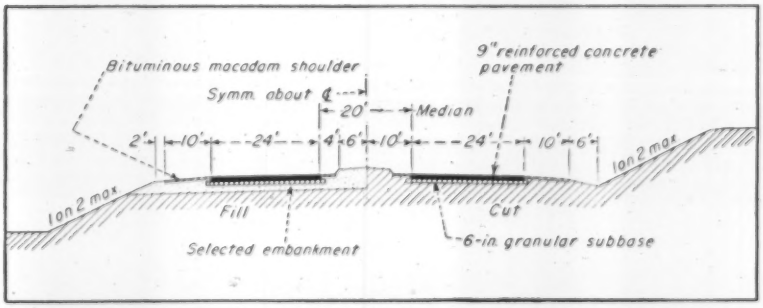
At least that is the present thinking. A pre-preliminary feasibility study just completed by Joseph K. Knoerle & Associates, on 13 possible turnpikes in various parts of the state indicated that the five routes should be self-liquidating from toll collections.

Within the next 30 days, according to Francis P. Old, executive-director of the commission, two feasibility reports will get under way on each turnpike. One will cover traffic and earnings—the other will be a civil engineering report covering location and estimated construction costs. George L. Jackson is chief engineer for the commission.

If all five turnpikes are judged self-liquidating, one bond issue totaling $583 million will be sold to finance them.

Tentative long-range plans are to complete as many of the five turnpikes as possible by the end of 1957.

The five projected toll routes will



KENTUCKY'S TURNPIKE PAVEMENTS will be separated by a 20-ft median, with a 10-ft shoulder along each outer edge. Kansas' will be similar, but Indiana's pavements, generally, will be separated by a 56-ft median, with stabilized shoulders along each side.

total 465 mi, ranging in cost from $1 million to $2.35 million per mile. Brief descriptions of the proposed turnpikes are as follows:

• **Tri-State turnkipe**—This 57-mi, $134-million project, encircling Chicago on three sides, will connect with three of the other proposed turnpikes.

Its major functions will be to by-pass traffic around the heavily congested areas of the city, move traffic from one radial turnpike or expressway to another, and to serve contiguous areas and communities around Chicago which are expanding at a rapid rate.

It will connect with U. S. 41 at its northern end and U. S. 6 on the south. Chances are there also will be a connection at its southern end with Indiana's east-west toll road.

• **Chicago-Rockford turnpike**—Costing an estimated $91 million, this 80-mi turnpike will radiate northwesterly from the Tri-State turnpike and extend to near Rockford. It then will turn north to the Wisconsin-Illinois state line to form a connection with Wisconsin's proposed toll highway to the St. Paul-Minneapolis area via Madison. The southeastern end of this turnpike also will connect with the northwest expressway of Cook County and Chicago.

• **East-West turnpike**—Starting at a connection with the Tri-State Turnpike, and the Congress Street Expressway leading to downtown Chicago, this 149-mi, $162-million turnpike will extend clear across Illinois to Rock Island and Moline. It probably will pass close to Aurora to serve as a much needed by-pass for that industrial city. Some time in the future Iowa may extend this toll road on west to Des Moines. A feasibility study on this route now is under way.

• **Chicago-Milwaukee turnpike**—Only 25 mi in length and costing an estimated $33 million, this route will connect with the northern end of the Tri-State turnpike and extend northwest toward Milwaukee to the Illinois-Wisconsin state line. Its southern end also will connect with the six-lane Edens Expressway which, in turn joins the northwest highway into Chicago.

• **Old National Trail turnpike**—The fifth route in Illinois' initial turnpike program will cross the southern part of the state. The 154-mi, $163-million turnpike will extend from East St. Louis to a point on the Illinois-Indiana state line southwest of Terre Haute.

This route probably will roughly parallel U. S. Highway 40 (Old National Trail), the second heaviest traveled rural highway in Illinois.

St. Lawrence power project validated, clearing last legal obstacle to seaway

The Supreme Court has cleared the way for construction of the St. Lawrence Power Project by the New York State Power Authority, in cooperation with its Canadian counterpart. The action also knocks down the last legal barrier to the St. Lawrence Seaway.

[This week the United States formally notified Canada that it is now authorized to participate in joint construction of the Seaway. The note had been at the White House for a couple of weeks pending the settlement of some domestic political problems involved. At press time, there was still no word on choice of an administrator to head the yet-to-be-created St. Lawrence Seaway Development Corp. Lewis G. Castle, Duluth banker, still seemed to be the No. 1 candidate.]

On its last "decision Monday" of the current term, the Supreme Court turned down a plea by the Lake Ontario Land Development and Beach Protection Assn., which was designed to upset a license granted by the Federal Power Commission to the New York State Power Authority to go ahead on the power project. The association, one of three groups which fought the license, argued water levels raised on Lake Ontario by the project would cause millions of dollars of property damage to its member landowners.

Last January, the U. S. Court of Appeals for the District of Columbia threw out this appeal, along with others by the Central Pennsylvania Coal Producers' Assn. and the Public Power & Water Corp. of Trenton, N. J.

In affirming the Court of Appeals ruling, the Supreme Court gave no reasons for its decision.

Now that the way is clear, officials for the New York State Power Authority expect to complete financing arrangements and begin construction by July 1. Estimated cost of the power project is $600 million. It will be located in the International Rapids section of the St. Lawrence River.

The legal maneuver by the Lake Protective Assn. came late in the high court's term. Quick action by the Justice Department, which filed the government's brief on behalf of the FPC and the N. Y. State Power Authority—plus the interrelationship of the seaway and power projects—put the pressure on the court to act before summer adjournment.

The government's brief stressed the importance of the power project to successful bidding and construction of the seaway, and pointed out that while no actual damage to property owners was expected to develop, adequate money remedies were available if any did occur.

NYC wins right to raise diversion of Delaware River Basin water supply

New York City has won permission to raise its diversion of Delaware Basin water supply from 440 to 800 mgd, as a result of the U. S. Supreme Court's acceptance of the recommendations of a special master.

The master was Kurt F. Dantzer, an Indianapolis lawyer. His recommendation basically was a new formula for releases of stored uppper Delaware River waters—a formula evolved from pre-trial conferences he held for months with engineers and lawyers representing New York City and the states of New Jersey and Pennsylvania.

Called the Montague formula, this plan for releases (ENR June 25, 1953, p. 27) would give New York City sufficient storage for dependable yield of the additional 360 mgd. It would also raise low flow at Montague gage in New Jersey to a 1,750-cfs minimum, upon completion of Cannonsville Reservoir which may now be built.

The court decision takes the reins off the NYC Board of Water Supply engineers which has had the $140-million Cannonsville project ready for first contracts for some time. An $81-million, 44-mile tunnel is expected to be advertised for bids shortly.

The court still retains jurisdition over the interstate stream, and in accepting a recommendation of Pennsylvania, the court's master stipulates that a river master now be appointed to check on future operation of the Montague formula and to report on it to the court at least annually.

This river master will be the chief hydraulic engineer of the U. S. Geological Survey, subject to approval of the U. S. G. S. Director, or such other hydraulic engineer as may be appointed by the court. His compensation to be fixed by the court, will be paid by New York City and the states of New York, New Jersey and Delaware.

Yukon survey

Canadian mining firms may develop 5,000,000 hp for electric smelting

Consultants have reported that 4,500,000 hp can be developed economically in the Taku, Upper Yukon, Dezadeash and Salmon rivers in Northern British Columbia and the Yukon, Canada. At annual meetings in Toronto, shareholders of Ventures, Ltd., and Frobisher, Ltd., Canadian mining companies investigating the power potential at the headwaters of the Yukon River (ENR April 29, p. 23), were told that the ultimate development of the Upper Yukon basin would be 5,000,000 hp.

Consultants on the power studies are T. H. Hogg of Toronto, former Chairman and Chief Engineer of the Ontario Hydro Commission, and J. M. Wardle of Ottawa, former senior engineering official in the Canadian government's water and conservation service. Frobisher and Ventures hold a joint interest in Quebec Metallurgical Industries, Ltd., whose special smelting processes are being considered together with the power sites studied.

Basic surveys are being continued this year with survey parties in the field since the end of March. Large lakes such as Atlin, Tagish, Taku Arm, Marsh, Lebarge, and Teslin would provide storage reservoirs for river regulation to insure a uniform twelve-month flow.

Main storage reservoirs would be formed by two dams, one in Miles Canyon on the Teslin River, above Whitehorse, Yukon Territory, and the other on the Yukon River below its confluence with the Big Salmon. Water from these reservoirs, about 2,000 ft above sea level, would be conducted southward from Atlin Lake through rock tunnels to provide operating heads totaling 1,900 ft. Tailrace water would pour into streams reaching the Pacific Coast through the southern arm of Alaska.

The site for metallurgical developments on the Taku River would have ocean transportation within 25 miles at the river's mouth, about 30 miles from Juneau, Alaska. Initial plans call for one plant to turn out 100 tons of iron or steel daily in such form as could be sold on the west coast of North America, and a second plant for matting cobalt concentrates from ores mined in the island of New Caledonia, 900 miles from the east coast of Australia. Further electrical reduction plants in the area would include facilities for the production of calcium, magnesium, alumina, phosphorus, and heavy water for atomic reactors.

Washington State spurs toll projects

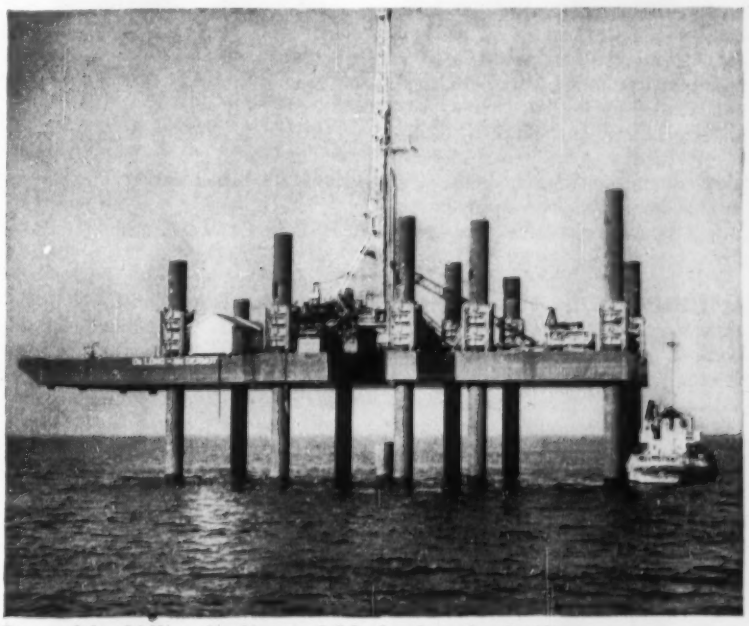
The Washington State Toll Bridge Authority has authorized preparation of final design plans for a $19-million floating bridge across Lake Washington east of Seattle and has furthered preparations for its proposed $158-million toll highway through Seattle from Tacoma to Everett.

• **The bridge**—Design work for the Lake Washington bridge is expected to take about eight months and thus bids may be called early in '55. Location of this second lake crossing has not been settled definitely. But, as of now, it appears that the bridge will connect Montlake in Seattle to Evergreen Point across the lake. Mayor Allan Pomeroy is trying to get the Navy to drop its opposition to a Seattle terminus at a location which would be near the Sand Point Naval Air Station, but it is believed that he will have little chance of success.

• **The toll road**—The authority has instructed State Highway Director William A. Bugge to discuss arrangements for a final traffic survey of the proposed Tacoma-Everett toll highway with the New York firm of Coverdale & Colpitts, which has made a preliminary feasibility report that is favorable to the development of the project (ENR April 15, p. 26).

A seven-man advisory committee of bankers and financial experts was named to counsel the authority on financing problems and was asked to recommend a consulting engineering firm acceptable to the investment houses that will handle the project's bonds.

The toll bridge authority at its last meeting also voted $12,500 for a study of a proposed interstate bridge at the mouth of the Columbia River between Megler, Wash. and Astoria, Ore.



Portable Wharf allows 100-ft depth drilling

Widening the scope of off-shore oil drilling operations usually limited to 40-ft depths in the ocean—a new DeLong-type of steel wharf in the Gulf of Mexico operates in seas 100 ft deep.

The portable wharf-barge can be towed to position and then raised up on its own legs which are hydraulically jacked down into position through 6-ft dia wells in the barge structure. First of its type to be adapted to off-shore drilling, the portable wharf weighs 2,500 tons, is 203 ft long, 70 ft wide, and 8½ ft deep. The steel caissons which support it are 160 ft long and are operated by jacks with lifting capacity of 250 tons each. Caissons need not be anchored permanently to the ocean floor, and the whole installation can be moved and set up in a new drilling site in 24 hours.

Forward deck provides a helicopter landing area, and primary drilling equipment is located on the port side, operating through a 12-ft-wide opening. This open-faced slot allows the barge to be swung bodily away from the drilling well when operations are completed. Interior of the hull is strengthened by steel cells which double as storage space for fuel, oil and water. A new unit is being made 220 ft long, 117 ft wide, and 13½ ft deep by the builders, the U. S. Steel Corp., for the DeLong-McDermott Co., Houston, Tex., owners.

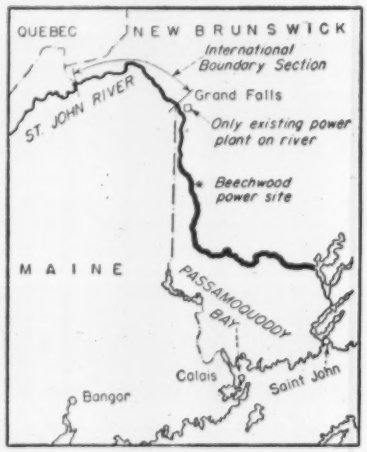
St. John River hydro development to cost $200 million over ten years

Plans for a $200-million development of the St. John River Valley in New Brunswick, Canada, were approved last month by the International Joint Commission in Ottawa. The approval gives the go-ahead for the development of over 750,000 kw along the river to be carried out within the next ten years.

First step in the projected series of low-head hydroelectric plants along the river will be the construction of a $40-million dam and power plant at Beechwood, N. B., with an initial generating capacity of 67,000 kw. Work is to start this summer at the dam site. Designs will allow installation of an additional 33,000-kw generating capacity at a later date. Total capacity of the New Brunswick Power Commission's system at present is only 100,000 kw, so that the fully developed Beechwood project would double the province's generating capacity.

The St. John River rises in Maine and for a short distance forms the International Boundary between Canada and the United States. The river reaches the Atlantic, through the Bay of Fundy. Since St. John waters are international, proposed hydro developments have been under study by the International Joint Commission for some years.

Heretofore the lack of power in New Brunswick long has been held a brake upon local industrial development. On one hand, the Beechwood project foreshadows an industrial boom in the province, but on the other hand, the new dam will make even more uncertain the likelihood of anyone ever building the tidal-power Passamaquoddy Bay scheme. The projected Passamaquoddy scheme, just to the south of the mouth of the St. John River, had been planned to sell a good part of its power to the province of New Brunswick, the one obvious customer.



The Beechwood site is 75 mi. northwest of Fredericton, capital of New Brunswick. Engineering studies are now in progress, but no contracts have been let. Total available head is about 300 ft, the one major waterfall on the river having been developed over twenty years ago by a private power company at Grand Falls. The U. S. Corps of Engineers has taken part in the engineering studies of the project since storage dams for river regulation will all have to be in the United States.

Turnpike decisions made in Texas

Construction of the $52-million Dallas-Fort Worth toll highway moved a step nearer realization when the Texas Turnpike Authority ordered traffic and aerial surveys, retained bond attorneys and general counsel, and engaged a chief engineer for the project.

The Texas Highway Department has agreed to make a traffic survey and Coverdale & Colpitts, New York consulting engineers, who made the preliminary feasibility survey, have been retained to make additional traffic and earnings studies. Their next report is due Nov. 15.

J. C. Dingwall, chief of the state highway department's construction and design division, has been appointed chief engineer-manager and secretary-treasurer of the turnpike authority.

Howard, Needles, Tammen and Bergendoff, Kansas City, made the preliminary route and cost study for the 30-mi highway. Consulting engineers for construction have not yet been designated.

Meanwhile, schemes to build privately owned toll roads lost some of their luster when the Texas Fifth Court of Civil Appeals, reversing a District Court decision, ruled that private toll roads would be subject to city, county, school district and state property taxes. Charters have been granted to private companies to build toll highways from Dallas to San Antonio and from the Oklahoma line to Houston and Corpus Christi. These two projects would cost around $400 million all told.

Backers of the schemes, the Texas Turnpike Co. and the Sam Houston Turnpike Co., believe that they could not undertake such huge projects unless the roads were tax free. And, they are appealing to the Texas Supreme Court.

The charters that were granted to the two companies stipulate that after Feb. 26, 1955, the Texas Turnpike Authority may build toll roads to serve the same areas as the private companies would under their plans.

Batch plant collapse stops The Dalles powerhouse work

The sudden and as yet unexplained collapse, May 28, of the batching plant supplying concrete for one of the contractor groups on the substructure for the powerhouse of the great Columbia River project of the Corps of Engineers near The Dalles, Ore., has caused the layoff of about 1,000 men that might extend for a period of perhaps two months.

The contractor, The Dalles Powerhouse Constructors, is a combination headed by Donovan Construction Co., St. Paul, and includes Winston Bros., McLaughlin, F&S, Johnson Drake & Piper, C. F. Lytle, S. Birch & Sons, Foley Bros., and Fegles. It holds the contract for the substructure which will support the first 14 units in the powerhouse. Unaffected is another contract held by Atkinson-Ostrander for the substructure of the remaining eight units, also the spillway contract held by the same firm.

The batching plant consisted of the usual compartmented bin on a steel tower, total height about 100 ft. It is said to have had a 500-ton rated capacity and to have been approximately full at the time of the collapse. A Corps of Engineers investigating board visited the site, in company with Philip S. Farley, service manager of the Noble Co., Oakland, Calif., manufacturer of the batching plant, but so far has not reported its conclusions.

The damage has been estimated to amount to $250,000.

New York Thruway tolls set, annual permit available

A passenger car that travels from New York to Buffalo on the New York Thruway will pay tolls aggregating $5.60 for the 427-mi ride, according to schedules set last week. The schedule includes provision for an annual permit, available only to owners of passenger cars registered in the state, costing $20 a year for unrestricted use of the 500-mi system, with the exception of a 50-cent toll at the Tarrytown-Nyack bridge and a 10-cent toll at the Tuckahoe Road barrier station outside New York City.

Henry C. Turner dies, founded construction firm

Henry Chandlee Turner, who saw the construction firm he founded grow from its first contract—a reinforced concrete cooper shop in Staten Island, New York—to one of the nation's major building firms, died near his boyhood home in Pennsylvania last week.

He was 82, and had been retired as chairman of the board of the Turner Construction Co., since 1946.

A native of Maryland, Mr. Turner graduated as a civil engineer from Swarthmore College in 1893. With DeForest H. Dixon—also a civil engineer—he formed the Turner company in 1902, to specialize in construction of buildings using a then little-known material, reinforced concrete. The company's first job—the Staten Island cooperage shop—quickly led to major work that included a nine-story reinforced concrete factory for the Gair Co., in Brooklyn, N. Y. (1904) and the first buildings of what later became Bush Terminal in Brooklyn.

The company then quickly branched out into many factory and industrial buildings and a number of sports arenas, including Harvard Stadium. During World War I it handled major construction at Brooklyn Navy Yard. In the years between the two world wars, the company returned to the commercial field, but also included the James River Bridge in Virginia (1928). In the second war, the company was a member of a group of firms building Naval air bases in the Pacific theater.

Since that war, major contracts have included the Port of New York Authority's huge bus terminal in New York City; the John Hancock Mutual Life building in Boston, and a contract for the newest—and one of the largest—of New York's skyscrapers, a block-square, 42-story structure now under construction on East 42nd St., in Manhattan.

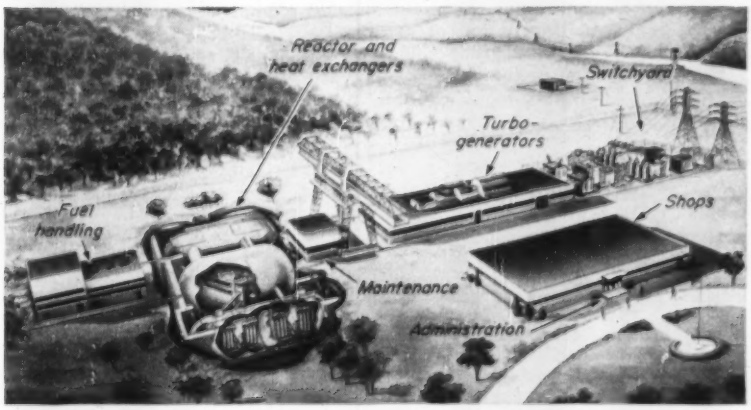
Mr. Turner was an organizer and an early president of the Metropolitan Builders Association of New York; president of the American Concrete Institute, and an officer of many other business and industry organizations.

Contractor makes good on cement-deficient roadway

The Minnesota State Highway Department and Okes Construction Co. of St. Paul reached an agreement last week relative to re-paving a five-mile stretch of highway in which a cement deficiency of 3,919 barrels was discovered in investigations conducted last winter (ENR Dec. 17, 1953, p. 24; Dec. 31, 1953, p. 23).

Under terms of the agreement, the firm is enabled to continue bidding on state highway projects without prejudice. It is stated that cause of the cement deficiency remains uncertain.

The firm will place a new 4½-in. reinforced concrete overlay over the present pavement on five separate sections to provide additional strength.



Plans readied for first atom power plant

Designs for the nation's first central station atomic power plant (ENR March 18, 1954 p. 28) are taking shape rapidly at Shippingport, Pa., with construction scheduled to start this year. The $45-million plant will be powered by an atomic reactor and heat exchangers located underground in concrete and steel structures for protection of operating personnel. Duquesne Light Co., Pittsburgh, has designed and will build the turbo-generator section of the plant. Westinghouse Electric Corp., Pittsburgh, has the contract for the design and construction of the reactor and heat exchangers. Stone & Webster, Boston, Mass., is subcontractor for the design of reactor foundations, reactor containing structure, fuel handling facilities, and auxiliaries required for operation of the plant.

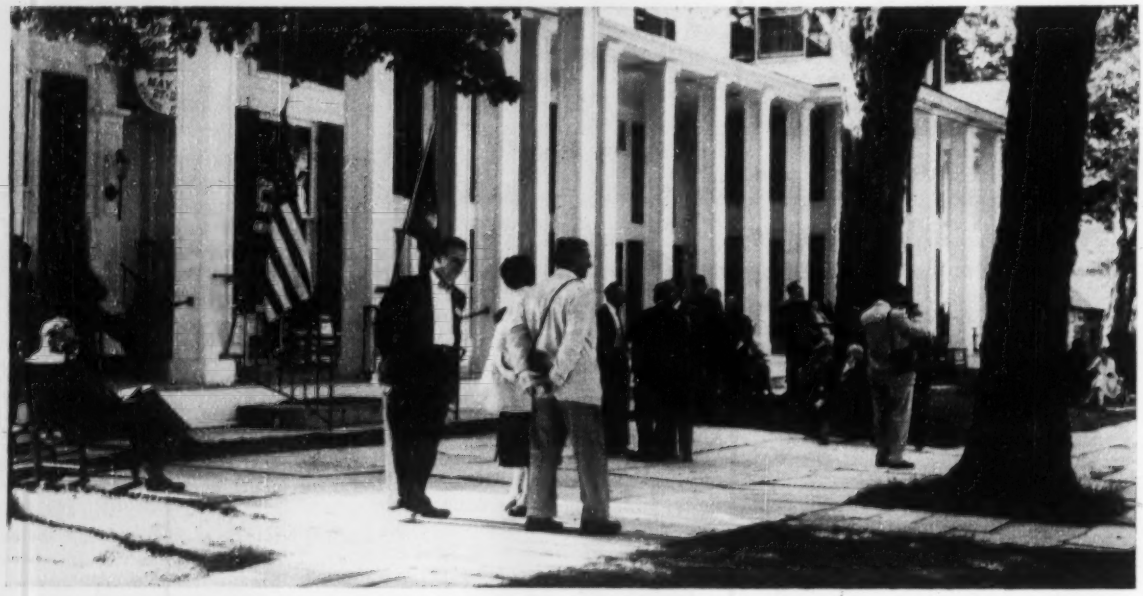
Jobs in the news

OFFICE BUILDING—Contract for the construction of a $10-million home office in Hartford, Conn., for the Connecticut General Life Insurance Co. has been awarded to the Turner Construction Co., New York. In two sections, one three-storied and the other four-storied with a penthouse, the glass and porcelained steel panel walled structure will be air conditioned completely throughout its 500,000 sq ft of office space. The main section of the building will be built around four interior garden quadrangles and will have escalators between floors with elevators for freight service. Provision for a future 400-seat auditorium is included in the plans by Skidmore, Owings & Merrill, architects, New York.

TUNNEL PLANS—Contract for final engineering plans and construction supervision of the 1.7-mi, $144-million Baltimore Harbor tunnel from Fairfield to Canton (ENR July 16, 1953, p. 22; Aug. 13, 1953, p. 24) has been let to Singstad & Baillie, New York. J. E. Greiner Co., and Joseph K. Knoerle Associates, Baltimore are associated engineers. Largest single project ever undertaken by Maryland State Roads Commission and to cost more than three times that of building the Chesapeake Bay Bridge, the tunnel will shuttle traffic from U. S. Route 40, on the north side of the city, onto the new Baltimore-Washington Expressway on the south. Completion is scheduled for 1958.

RUNWAY EXTENSION—A $3,058,020 contract to build a 4,231-ft extension to the 5,769-ft NW-SE runway at Offut Air Force Base, Omaha, Neb., has been awarded to Peter Kiewit Sons, Co., Omaha, by the Corps of Engineers (ENR April 8, p. 23). With the government furnishing land from which to take 3,300,000 cu yd of fill for the job, Kiewit has 16 months in which to build the 35-ft high, 1,800-ft wide extension. Entailing a new taxiway and 78,000 cu yd of concrete, the job also calls for relocation of five miles of railroad and the construction of a new bridge for the line.

WIND TUNNEL—A $4-million contract for construction of a supersonic wind tunnel for North American Aviation, Inc., Los Angeles, Calif., has been awarded to the Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa. For wind speeds up to three times the speed of sound, that is, 2,280 mph, the tunnel will be "in-line" with velocity change equipment concentrated in the throat and a 7-ft square test chamber. Compressed air from a series of large storage spheres located at the throat end of the tunnel will provide one-minute rushes of air by feeding into the air blast in series.



Apprenticemakers gather in Vermont mountains to discuss . . .

Recruitment: top problem for building

Twice as many skilled workers leave the construction trades each year as are replaced by graduates of apprentice programs. Nobody seems to have exact figures, but the seriousness of the construction industry's recruiting problem is starting to worry contractors and union leaders alike.

There are some 1,500,000 skilled craftsmen in construction. Roughly 50,000 die, retire or change their occupation each year. Even if one-fourth of the approximately 100,000 apprentices in the building trades are graduated each year from training courses which average four years in length, it is clear that 25,000 trained workers cannot fill the gap.

And the hole is made relatively bigger by the rapid growth of construction, with its resultant demand for more and more manpower, and by the plain fact that the number of potential apprentice graduates to the skilled trades is far less than the number of recruits who begin courses and never finish them.

• **The apprenticemakers**—The specter of attrition in the building trades was well known to most of the hundred-odd state and local apprenticeship officials who gathered two weeks ago at Manchester, Vt., for the 10th annual Eastern Seaboard Apprenticeship Conference. But the delegates, most of them local-level joint apprenticeship committees—the breeding grounds of construction craftsmen—were far from awed by the implications of the impending shortage of skilled workers.

They hashed over the similarities and differences in their problems, learned from experimentation of apprenticeship leaders in other cities and listened to top-level urgings by speakers from employer groups, union internationals and the U. S. Department of Labor.

One thing was clear: there is no typical apprenticeship program. Those programs which adhere to the standards established and promulgated through the efforts of the Bureau of Apprenticeship of the U. S. Labor Department have basic similarities, but beyond them the programs of the various construction trades assume the characteristics of the craft: personality of union and employer leaders, extent of labor-management cooperation, and general economic health of the trade.

For example, a representative of the Brotherhood of Painters, Decorators and Paperhangers ruefully reported that less than 22% of those indentured in his trade finish their training. A spokesman for the International Brotherhood of Electrical Workers said that well over 90% of the IBEW's apprentices finish their courses. The other crafts lie between these extremes.

• **On the rise**—Apprenticeship in the construction craft is increasing. In the last five years the proportion of trainees in construction has risen from 49% to 57% of the apprentices in all other apprenticable trades which have programs registered with the U. S. Dept. of Labor.

The Associated General Contractors is getting into the apprentice field with plans for a full-time coordinator and staff, and a few unions are working up plans for including financing an administration of local apprenticeship plans in their contracts with contractors.

• **The eternal issue**—State and local apprenticeship officials seem willing to accept help from the U. S. Bureau of Apprenticeship in setting standards, preaching the doctrine of apprenticeship and the like, but beyond this there is suspicion of too much federal control. The jealousy with which local autonomy is guarded in unions applies to apprenticeship, too. Local union members of joint apprenticeship committees, for the most part, believe that training problems reflect local situations and should for this reason not be subject to dictation by international unions.

Veteran apprentice trainers shuddered together at the conference when suggestions were made for adoption of any rigid national plan for appren-

TWICE as many craftsmen leave building trades yearly as are replaced by apprentices.

tice selection and training programs.

Anxiety among local union apprenticeship workers—they outnumbered employer representatives at the conference—was evident in discussions of trends in apprentice training. For one thing, spokesmen for several unions—sheet metal workers, steamfitters and carpenters—were disturbed at the increasing adoption of aptitude tests and schooling along lines which they believed were not directly related to the trade for which the apprentice is training.

"Are we turning out journeymen or engineers?" one oldster wanted to know. Another was concerned that such frills as scholarships were weaning young workers away from unions.

Argument raged hot and heavy over local vs. top-level control, classroom vs. on-the-job instruction, advancing apprentices' pay and shortening their period of indenture. But there was little disagreement that the golf was good and that the overall aim of pushing apprenticeship programs was being well served by the exchange of ideas.

Affirm state control of union action

In what may be a historic interpretation of the role states may play in labor disputes, the Supreme Court this week upheld the right of an employer to collect money damages in a state court from a union for action which is unlawful under the federal Taft-Hartley labor law.

The ruling affirms a decision by the Supreme Court of Virginia, which awarded $129,000 in damages to the Laburnum Construction Co., of Richmond. Laburnum sued the United Construction Workers, affiliated with John L. Lewis' United Mine Workers; District 50, UMW's catchall union; and the parent UMW.

Laburnum chose not to take its case to the National Labor Relations Board. Instead, it elected to sue for damages suffered by loss of construction business in Kentucky coal fields, due to trouble caused by UCW when the company refused to recognize it as bargaining agent.

UCW tried to compel recognition through a "show of force," which the Virginia court concluded amounted to intimidation of Laburnum's employees, who were too afraid to work. Laburnum lost its contract and was rejected on other bids because coal companies would not risk spreading the trouble to their UMW-organized mines.

• **Crux of dispute**—The union argued that since its conduct amounted to an unfair labor practice under T-H (coercion of employees), the employer had recourse only to NLRB and that state courts were without authority to award damages for such conduct.

Laburnum argued—and both the Virginia Supreme Court and U. S. Supreme Court now agree—that even though federal labor law takes priority over state regulation, this does not mean that Taft-Hartley has destroyed commonlaw rights to recover in state courts for torts (wrongs) by a union.

Justice Harold Burton, who wrote the court's 6-2 decision, pointed out that in the Laburnum case, Taft-Hartley neither afforded adequate remedy (such as damages) nor expressly denied recourse to the state courts for such relief.

Pledge taken

No-raid pact means little for construction

The pledge taken this week by some 100 AFL and CIO unions to cease raiding activities on one another is of major significance to the organized labor movement. The importance lies not so much in the immediate effect of the historic "no raiding" pact, but in the developing trend among labor unions to make peace among themselves and save their energies for battling against "outsiders".

With the signing of the AFL-CIO agreement, the participating unions agreed to halt all attempts at taking over members of rival organizations—a practice as old as the labor movement itself.

The formal exchange of signatures—taking place in a downtown Washington hotel room under the watchful eyes of AFL president George Meany and CIO chieftan Walter Reuther—indicates a developing maturity of union leaders and a realization that such activities have been costly and without material gain to either giant federation.

But the formal cease-fire agreement will not bring a quick end to jurisdictional wars. For instance, it will not have any effect on the jurisdictional fights between AFL construction unions and will not even bring a halt to all raiding between these unions and rival labor groups in the CIO.

Most affiliates of the AFL Building Trades Department are taking part in the no-raiding pact. However, one important dissenter is the powerful carpenters' union which—for the time being—is boycotting the project. The carpenters, therefore, will be free to conduct raiding excursions on the pact signers, and vice versa.

Even among unions taking the pledge there will be continuing jurisdictional scraps. While officials of the international unions sign on the dotted line, leaders of some locals are hostile to the plan and will probably continue to try to wrest away members of rival unions.

Thus, the no-raiding pact provides at least as much of a challenge as a solution for the labor movement. To work successfully requires the goodwill and determination of the participants. If it works, the results will be felt throughout all of organized labor and the industries which bargain with it.

31,000-ton steel framework for 41-story Chicago skyscraper rises above busy railroad tracks

AMERICAN BRIDGE safely handles difficult construction problem with minimum interruption in rail traffic

CONSTRUCTION of the new Mid-America Headquarters building of the Prudential Insurance Company, being built above 18 tracks of the Illinois Central Railroad located at Michigan Avenue and Randolph Street in Chicago, is now well under way. The big, 600-ft. skyscraper, which straddles eighteen railroad tracks, is moving upward according to schedule with little or no interruption of rail traffic.

Approximately 31,000 tons of steel will be used for the framework for this tall, modern structure—all of which is being fabricated and erected by American Bridge. It will take 125 American Bridge men about one year to erect the big steel columns, beams and girders for the towering structure.

When completed next year, the Prudential Building will rank among the world's most outstanding office buildings. And it will take its place alongside the Empire State Building, the Chrysler Building, the United Nations Headquarters, and other notable American Bridge structures from coast to coast.

PRUDENTIAL LIFE INSURANCE COMPANY BUILDING
Chicago, Illinois

Architect and Engineer:
Naess and Murphy, Chicago

General Contractor:
George A. Fuller Co., Chicago

Steel Fabricators:
American Bridge

Steel Erectors:
American Bridge

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

Contracting Offices in: AMBRIDGE · ATLANTA · BALTIMORE · BIRMINGHAM · BOSTON · CHICAGO · CINCINNATI · CLEVELAND DALLAS · DENVER · DETROIT · ELMIRA · GARY · MEMPHIS · MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH PORTLAND, ORE. · ROANOKE · ST. LOUIS · SAN FRANCISCO · TRENTON · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMERICAN BRIDGE

USS

UNITED STATES STEEL

Above and cover photo by Don Morgan

PORCELAIN-ENAMELED PANELS and large picture windows are major elements of the exterior of a new hotel in Hartford.

Thin-skinned hotel

Sandwich panels with porcelain-enameled facing continue the trend to metal exteriors for tall buildings—Contractor shows ways to cut building cost

Exterior walls of the 16-story, $5.5-million Statler Hotel (approaching completion in Hartford, Conn), are only 1¼ in. thick. This is only a small fraction of the thickness that would have been required if conventional masonry construction had been adopted.

The thin, lightweight walls (they weigh only 4½ psf) were made possible by treating the building exterior, from floor to ceiling in each story, as if made of glass. To eliminate a fire-resistant backup that the local building code otherwise would have required, the enclosure where not actually of glass had to have the same fire resistance as wire glass, sufficient strength to carry wind loads, excellent durability, good insulation qualities and ability to keep out rain. Metal-faced sandwich panels were devised to meet these requirements and then installed in aluminum sash, in the same manner as glass.

Development of these panels was not without problems, many of which had to be solved before erection started. Their successful solution made possible another step forward in the development of metal walls for tall buildings.

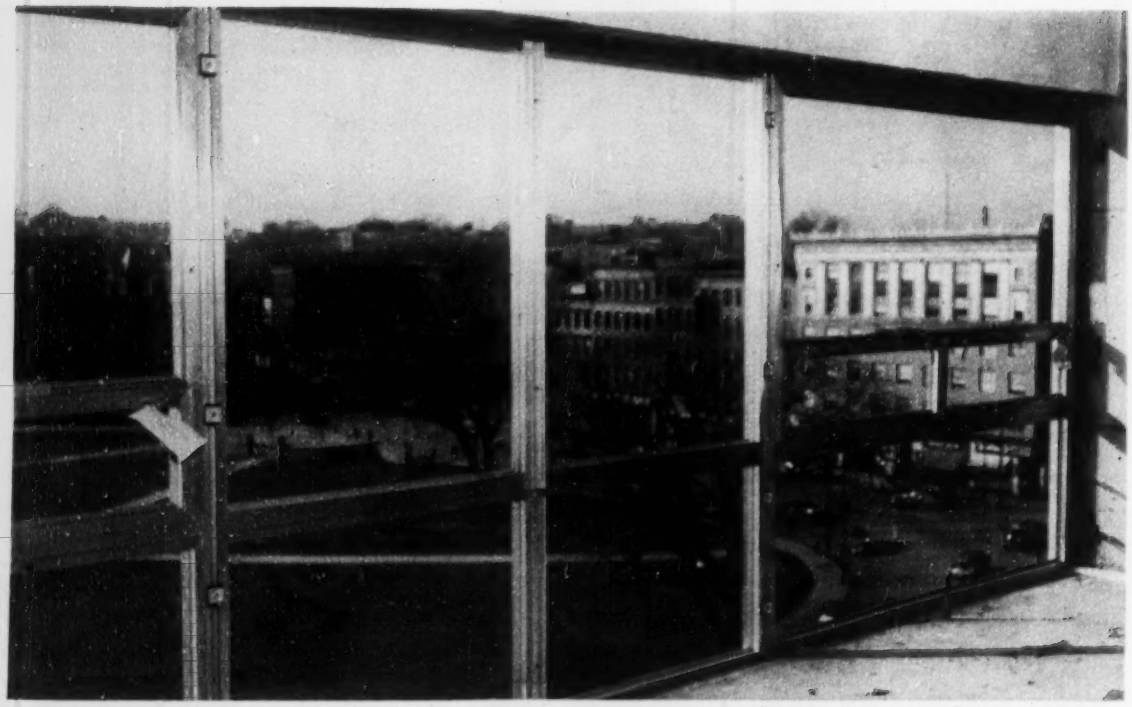
• **Others are much thicker**—The trend toward metal exteriors for skyscrapers in this decade can be traced easily—beginning with the four renowned office buildings in Pittsburgh built in 1951 and 1952. The 525 Wm Penn Place Building has a stainless steel facade backed up with 8 in. of brick (ENR Feb. 22, 1951, p. 40). The two buildings in Gateway Center are enclosed with stainless steel panels into which a 4-in. lightweight-concrete backup had been cast prior to erection (ENR April 24, 1952, p. 67). And the Alcoa Building is faced with aluminum panels, which are backed up with 4-in.-thick pneumatically placed, insulating concrete (ENR, April 3, 1952, p. 67).

At the present time, several buildings under construction will have exterior curtain walls comparable in thickness with that of the Hartford Statler. One of the most noteworthy is the Republic National Bank Building in Dallas, with 1½-in. wall thickness—⅛-in. aluminum sheet plus vapor seal and insulation.

Wall panels for the Pittsburgh buildings were one story high. However, aluminum panels two stories high were adopted for the 99 Park Ave. building in New York City last year, to speed construction. Following the pattern of the Pittsburgh buildings, though, these panels also have a backup—4 in. of brick. Local building codes require the backup for fire resistance, though none would be required if the whole space between floor and ceiling were enclosed with glass.

• **Problems solved**—Designers of the Hartford Statler, taking cognizance of this, decided to treat the exterior wall as if made of glass. An exception was the spandrel facing, where the con-

(*Continued on page 32*)



FIRST STEP in installing the walls is to bolt to the concrete structure an aluminum frame, one story high, one bay wide.

WALL PANELS are clipped to the frame. Of sandwich construction, they have a glass-fiber insulation core 1 in. thick.

crete spandrel beam itself provides ample fire resistance.

The designers called for large picture windows, which can be opened for cleaning from the inside by a key and hinge arrangement. Areas between and below the windows are occupied by wall panels that the city building department accepted as a substitute for glass. Aluminum sash for these panels and the windows were set as a single unit and the frame bolted to the building's concrete frame.

At first, an attempt was made to hold the 1¼-in.-thick panels in place with the ordinary spring action of a glazing bead. However, this was found to be difficult in practice, because the bead tended to rotate. This troublesome movement was eliminated by anchoring the bead with screws.

Striated aluminum panels cover the reinforced concrete spandrel beams and columns. These panels also are clipped into the aluminum frame.

• **Warping eliminated**—The wall panels are of sandwich construction, with a 1-in. thick glass-fiber insulation core and aluminum-foil vapor seal glued to two facing materials. The interior facing is a flat, ¼-in. thick asbestos-cement board. The exterior is a laminate of ⅛-in. asbestos-cement board and a 20-ga steel sheet with a blue-green porcelain-enameled outer surface. Purpose of this laminate is to eliminate "oil canning," or warping, of the facing.

In addition, the porcelainized metal was given a mottled, crinkly finish in an irregular texture, with some gloss. This color variation and texture are expected to make unnoticeable any minute irregularities in the shape of the surface, which the designers wished to appear as flat as window glass.

Edges of the panels are sealed with tape. However, small holes were punched in the tape to prevent build-up of pressure in the interior of the panels. Heat of the sun, the designers estimated, could set up a vapor pres-

sure of 200 psi, if no relief were provided.

The panels vary in size, some of the largest being about 2½ x 7 ft. They have a heat-transmission coefficient of 0.20, compared with 0.16 for the walls of the Alcoa Building in Pittsburgh and 0.23 for the Gateway Center buildings. Cost in place is estimated to be $5 per sq ft. A total of 1,640 panels (18,000 sq ft) was required to enclose the building.

• Designed for low-cost operation—While the exterior takes the spotlight, several other features of the Hartford Statler are worthy of note:

In the first place, this is the smallest hotel the corporation has ever built; it contains only 455 rooms. Hence, it had to be carefully planned both for low initial cost and economical operation. Accommodations to meet the demands of guests had to be accurately estimated. Size of rooms had to be kept close to desirable minimums. And the number of rooms per floor had to be close to the optimum for efficient service.

When bids were taken in July, 1952, it quickly became apparent that a sum approximating $1 million would have to be cut from construction costs to keep within the allocated budget. At this point, Statler committed itself to its general contractor, the George A. Fuller Co. with one important stipulation: Fuller had to effect this million-dollar saving and keep construction quality up to Statler standards.

• Teamwork in cost cutting—Then, the cost struggle began. Neil Horgan, executive vice-president of Fuller, immediately threw to the task some of the company's best men, including C. Z. Smith, chief mechanical engineer, and Charles A. Sullivan, estimator, who were set to work to meet the cost proviso. Sullivan, in particular, was assigned on a full-time basis to William B. Tabler, architect for Hotels Statler Co.

From then on, success of the cost-cutting drive hinged upon the cooperation of owner, architect and builder. Tabler, Harold B. Callis, senior vice-president and secretary of the Statler company, Tabler's designer, H. J. Stojowski, and the Fuller crew became a close-knit team.

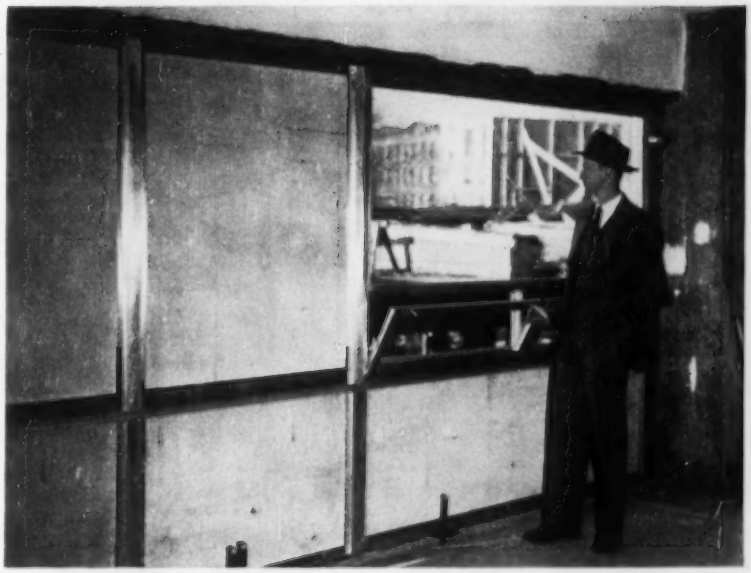
Tabler's eight-year association with Statler management, and his accumulated experience in hotel design and construction, enabled him to set up control figures early in his contact with the builder for each element of the building's total cost. Upon comparison with those in the contractor's final bid, his figures proved amazingly accurate.

Comparative estimates were made of various types of construction. The builder brought in several subcontractors to assist in evaluation of various ideas under consideration, and advantageous design suggestions were adopted by the architect.

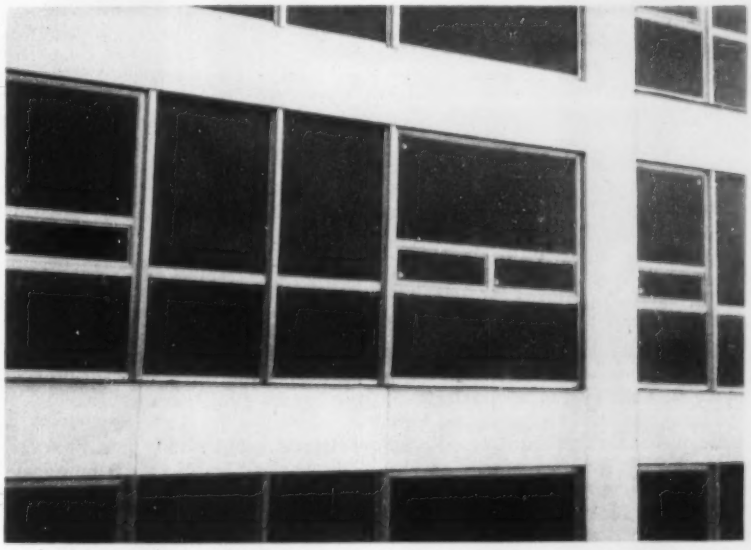
One noteworthy saving resulted from a restudy of the air-conditioning design. Previously, Statler had analyzed all available data on Hartford's weather and found that only 13 or 14 days were so unbearably hot as to make air conditioning practically a "must". This information provided for the team a rational basis for reducing air-conditioning needs. Movable sash was included in the outer walls to enable more advantage to be taken of natural ventilation. The fact that the hotel faces upon Hartford's Bushnell Park helped in determining the amount of window areas that could be opened for this purpose.

Because of site limitations, the architect made an extensive study of walls and partitions to obtain minimum room sizes within the fixed outer dimensions of the building. He finally selected solid plaster partitions, 2 in. thick, for bedrooms. This yielded a substantial saving in area compared with ordinary masonry partitions plastered on both sides, at the

(Continued on page 34)



INSIDE, the wall panels have an asbestos-cement facing, which will be painted to form the interior wall. Bob Whittlesey, construction manager for the contractor, is shown inspecting the operable sash.



OUTSIDE, the blue-green of the wall panels forms a sharp contrast with the light-colored panels covering columns and spandrel beams.

CONCRETE FLOOR SOFFITS carefully formed (left) required only spackling and paint to serve as ceilings (right).

same time allowing normal acoustical requirements to be met.

All guest rooms are "outside" rooms—no courts. Most of them are of the studio type, styled to be a living room by day, a bedroom by night. Baths are designed to serve also as dressing rooms, a wide top on the toilet acting as a seat in front of a mirror and wide-shelf cabinet. All bathroom tile was applied directly to white plastered walls with a synthetic-resin adhesive.

And there were other examples of owner-architect-builder cooperation that resulted in savings:

• The concrete roof and concrete columns for the ballroom were changed to open-web steel joists and steel columns, while steel construction was changed to concrete for the supper room wing, saving about $25,000.

• Colored concrete block was used where feasible instead of unglazed 5 x 12-in. block. The wainscot was made a dark color, and the blocks above light. An approximate saving of $10,000 resulted.

• The equivalent of one mile of guest-room windows offered multiple opportunities to cut costs; so comparative studies were made of the elements. A plaster valance was changed to a simple metal one, supplied by the hollow-metal contractor. In addition, close tolerances permitted plastic stools to be reduced from 14 in. to 11⅞ in.

• Some parapet walls of masonry coped with cut stone were omitted. This represented a saving of $5,000.

• The asphalt tile base in guest room closets was taken out and a painted simulated base substituted.

• A slotted type of shower-curtain track built flush into the ceiling was changed to a typical suspended type. The material cost was higher, but labor savings more than balanced it. Besides, the new arrangement gives the ladies hanging space for nylons.

• An attractive roof finish was discovered in the form of white sea gravel, which could be used where promenade tile was not necessary for traffic. Large areas of promenade tile were thus omitted at a saving of some $40,000.

• During the period of "looking for the million," continuing study of the mechanical requirements affecting clear ceiling heights resulted in the basement and sub-basement floors being lifted to higher levels. Savings from this came to around $18,000.

• For the most part, the ceilings of guest rooms are soffits of concrete floor slabs above. Careful formwork and good spackling provided a ceiling surface ready for painting.

• Finally, several mechanical changes were made in the original plans that gave a saving of nearly $80,000 without sacrificing the functional quality of the overall job.

• Ballroom and dining facilities—The ballroom will be able to accommodate 1,300 persons. For smaller gatherings, however, it can be subdivided with sliding, wood partitions.

The hotel will have two restaurants and two bars. The main restaurant with seating capacity for 370 persons, will double as a night club, with capacity for 300. A single kitchen, able to prepare 12,000 meals per day, will serve both restaurants, and the banquet area as well, since they will all be on the second floor.

• Concrete cantilevers — As for the structural design, typical floors are of reinforced concrete beam-and-slab construction. A two-way slab was specified, but it was necessary to have beams on four sides of the slab to transmit wind load to the columns. Ends of the bedroom wings are cantilevered 12 and 15 ft, to eliminate columns.

The lower public floors are of flat-slab construction, with shear walls carrying the wind load. A steel-bar mushroom shear head was incorporated in the top of columns to eliminate capitals and dropped panels. Also, substantial cost reduction was achieved by the engineers in eliminating pile foundations.

At terrace level is a 60-ft-long non-counterbalanced cantilevered balcony. Its 6½-ft overhang is anchored on a concrete-filled, 6-in. dia, extra heavy steel pipe, which is adequate to resist the torsional stresses involved. Twisting of the pipe is prevented by anchorage into the columns.

An impressive long-span cantilever projects over the main-entrance driveway. The supporting girder projects out 25 ft and has a 50-ft anchor span. It supports not only its floor loads but also those from a roof above. Projecting above and below the slab, this member is 50 in. deep.

Another unusual feature of the design is a cantilevered stair anchored at its base.

Seeley, Stevenson, Value & Knecht were the structural engineers, and Jaros, Baum and Bolles, the mechanical engineers.

Universal Corporation, Dallas, Tex., was responsible to the general contractor for the building's metal exterior, which is made up of fabricated aluminum window units, the striated aluminum-panel covering of all concrete columns and spandrel beams, and porcelain enameled panels. The sandwich panels were fabricated by Seaporcel Metals, Inc., Long Island City, N. Y.

On the job, the plans were translated into reality by H. W. Dobson, superintendent, and R. B. Whittlesey, construction manager, both of the Fuller organization, and Robert Engelbrecht, Tabler's architectural representative.

B. F. Goodrich announces

Koroseal now used in roofing helps prevent fires like this

Koroseal is part of new Lexsuco roof construction

A NEW type of construction cuts out a fire hazard in flat roofs. Koroseal flexible material is used to replace the conventional vapor barrier made up of asphalt and layers of asphalt-saturated felt.

Use of Koroseal eliminates burnable material between roof deck and insulation. It also prevents tar or asphalt from dripping down to feed fires below the roof. Other features of the new roof make it more rigid, help cut down buckling during a fire.

The Koroseal flexible material used in the Lexsuco roof construction is specially compounded for this use. It is supplied in rolls for easy handling as shown in the photo. It is rolled out in strips and the laps are sealed. Full-scale fire tests have proved the advantages of this new type of roof over ordinary construction. Yet the complete roof costs no more, sometimes less than standard roofs. B. F. Goodrich does not make direct sales of Koroseal for roofing—*you can get complete facts by writing Lexsuco, Inc., 4819 Lexington Ave., Cleveland 3, Ohio.*

Koroseal flexible material is made in many forms: hard or soft, film or sheet, it can be molded or extruded, fabric can be coated with it. Koroseal may have many future uses in the construction industry. It is waterproof; will not crack, chip or peel, is not affected by paint or by most chemicals and acids. If you have a problem Koroseal may help solve, write: *The B. F. Goodrich Company, Marietta, Ohio.*

Koroseal—T. M. Reg. U. S. Pat. Off.

Koroseal

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B.F.Goodrich

INDUSTRIAL PRODUCTS DIVISION

SEAPORCLAD BY SEAPORCEL

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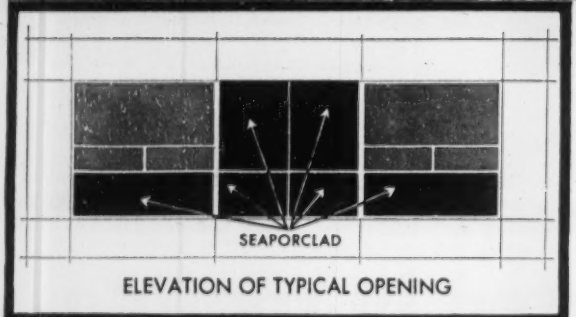
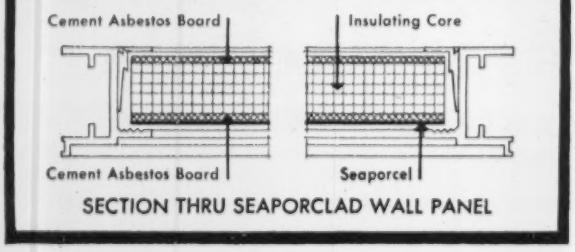
William B. Tabler, Architect
Geo. A. Fuller, Contractor
Aluminum windows by Universal Corporation, Dallas, Texas
photograph by Louis Checkman from model by Theodore Conrad



ELEVATION OF TYPICAL OPENING



SECTION THRU SEAPORCLAD WALL PANEL

455 ROOM HARTFORD STATLER HOTEL, Corners of Pearl, Ford Sts., Hartford, Conn.

THE USE OF versatile Seaporclad building panels is finding increasing architectural recognition. A lamination of Seaporcel porcelain with thermal and sound insulating core, Seaporclad has been chosen for the 20,000 square feet of colorful panels for the Hartford Statler, the newest addition to the Statler Corporation's national chain of quality hotels.

MEASURING ONLY 1⅜ inches in thickness, Seaporclad curtain wall panels for the Statler Hotel meet the most rigid requirements of the Hartford Building Department codes. Seaporclad provides a complete exterior and interior wall . . . of sandwich construction . . . weather, fire and corrosion-resistant . . . with maintenance costs at the vanishing point.

THE STATLER HOTEL panel consists of nationally recognized Seaporcel porcelain, laminated to a cement asbestos board and an insulating core to form a single sandwich unit.

SEAPORCLAD FACADES supplant heavy masonry walls, save space and weight, with resultant reductions in structural steel and foundation requirements. It is also easily and economically installed. Seaporclad is fabricated for a variety of uses in conventional sizes and in any thickness or shape . . . and is available in the fullest scope of textures and colors.

There are a few areas in which Seaporcel Metals, Inc., is not represented. Inquiries from interested agents are invited.

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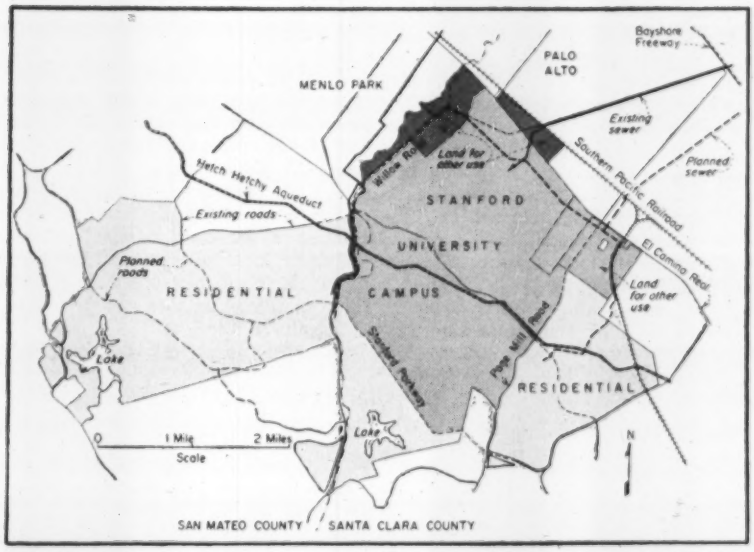

HOMES FOR 30,000 PEOPLE by about 1970 will occupy vacant land that is part of Stanford University's founding legacy.

$200-million development set on Stanford University lands

The development is complicated by being situated in two counties and because none of the land can be sold. Some 3500 acres will be kept for university academic use.

Some $200 million of construction will go into place during the next 15 years or so in the process of converting 5,300 acres of rolling foothill land on the San Francisco Peninsula into high-type planned communities.

Part of the money will be spent by Stanford University — owner of the acreage; part by individuals and developers building homes, stores and other facilities; and more will be spent by utilities that will be required to service the land.

But there are elements that distinguish the Stanford project from ordinary town developments: Size is one factor—from 30,000 to 45,000 people will live there ultimately; under the university's founding grant none of the land can be sold, so it must be leased, mostly for 99-year terms; because the area lies in two counties, development of sewer and water service will be complex, as will be that of schools and utilities.

Some of the work already has been done: A trial tract of 16½ acres was leased for individual homes in 1952. University officials wanted to test acceptance by ordinary home owners of the 99-year lease principle. And on an area set aside for limited manufacturing purposes a $1-million electronics plant has been built, and a $2-million film-processing facility has just been completed.

But the major work is just starting. Most important element will be a regional shopping center keyed around a $3-million, 200,000 sq ft branch of the Emporium, one of San Francisco's leading department stores. An agreement between the Emporium and the university was signed early in April and construction work is expected to start this summer. The new store will be the heart of a major shopping center being planned by Welton Becket and Associates (ENR Jan. 7, p. 48). Also included will be many other stores and extensive parking areas. Adjacent to the center is an area designated for professional and administrative uses. The combination will serve not only the newly developed land but a major part of the entire peninsula.

Only about 350 acres have been set aside for commercial, limited manufacturing and professional uses. The rest of the 5,300 acres will be used for housing together with necessary smaller neighborhood shopping centers. And the high-type residential area will vary from a few multi-unit apartments all the way to four-acre estates. Master planning of this phase of the work by Skidmore, Owings & Merrill, Architects & Engineers, is still under way. The preliminary master plan has been given only tentative approval by university authorities. Thus, the exact nature of the housing development has not been established firmly.

• **Original grant**—When the university was founded by the Stanford family some 65 years ago a substantial part of the endowment was 9,000 acres of land, located 30 miles south of San Francisco. Terms of the grant provided that none of this could be sold. Thus results the 99-year lease principle as far as private individuals are concerned. Some public agencies have acquired rights to part of the land through friendly condemnation suits for schools, highways and utilities.

On the remaining 8,800 acres, the university proper now occupies substantially more than 1,000 acres. And in the master plan a total of 3,500 acres is being reserved tentatively for university use.

• **Why idle land?**—At first glance, it is surprising that 5,300 acres of obviously desirable land has remained idle for more than a half century.

One reason is that demand for good building sites has not been acute enough (until recently) to justify leases on the 99-year basis. Additionally, the university has not felt the sharp need for additional financial resources that it does now. The cost of educating college students in a privately endowed institution has increased rapidly. Further, the available sites for desirable housing in this area have largely been built upon. Result is that development of the land is now indicated.

The San Francisco peninsula is one of the fastest growing areas in California. The peninsula suburban area had a 1940 population of 111,500. By 1950 this had grown to 228,500, a 105% increase. Authoritative 1953 estimates set the population at 287,000 or an additional increase of 26% in the three-year period starting from 1950.

Obviously, growth will not continue at these rates because a saturation level will be reached. Much of the available remaining land in addition to the Stanford property is marshy bay front area that can be used only for industrial, commercial or lowcost housing tracts. This enhances and supplements the Stanford property as an area for high-type development.

Another factor indicating this area will require more higher-than-average-cost homes is that, according to the 1950 census, San Mateo County had

(*Continued on page 38*)

the highest median family income of any county in California.

• **Master plan**—All of these factors are being considered by Skidmore, Owings & Merrill in preparing the master plan. The firm has estimated that the peninsula suburban area would need a minimum of 80,000 new dwelling units by 1970. And 30% of these should be in the greater-than-$20,000-class. There will be room for more than 9,000 housing parcels in the Stanford development.

Part of the land—where the terrain is rugged or wooded—probably will be leased direct to individuals as acreage estates. The individuals will do much of the development work in providing roads and the like. And these larger units can be serviced by means of individual septic tanks rather than by sewers.

But, most of the residential area of the Stanford development is laid out as separate planned communities. These are established largely by natural topographic boundaries. It is anticipated that such communities will be leased to one or more individual developers who will pay the university a lump sum prepaid land rental. They will in turn develop the tract to standards carefully overseen by the university. And here lies the crux of the feasibility of a high-type development.

In many communities, high-type projects are planned but not achieved because development criteria are inadequate. Local and regional planning agencies have to a large extent been unable to hold developers to rigid high standards. It is expected that this will be different at Stanford where the university will retain ownership and will have to live with the area from here on out and thus will enforce planning provisions.

• **Road pattern**—Developers will install all secondary roads as well as utilities for their individual areas. However, the university will include the major road net and primary trunk utility services in its development costs.

Part of the road pattern is indicated already by existing roads. The main new road will be the four-lane divided Stanford Parkway. Wide right-of-way will be provided for the parkway, extending for six miles in an east-west direction. Two major cross roads, Willow Road and Page Mill Road, will be provided. These roads connect with streets existing or to be built that have been designated as access roads for the Bayshore Freeway—the main route to San Francisco that will be extended as a major freeway to Palo Alto by about 1960.

• **Utility problems**—The utilities are complicated by the fact that the land lies in both Santa Clara and San Mateo counties. In Santa Clara County it is expected that much of the area will be annexed as developed to the city of Palo Alto. This municipality has a complete system of municipal utilities including water, gas and electricity. Palo Alto will extend these utilities as needed.

On the San Mateo County side of the area, development is slightly more difficult. Intervening privately owned property prevents the annexation of the area to the city of Menlo Park. So a water district probably will be established to permit purchase from San Francisco's Hetch Hetchy Aqueduct that runs through the area. San Francisco, according to state statute, can sell water to other public agencies but not to private agencies. It may well be that the water district will in turn contract with an existing private utility, California Water Service Co., for operation purposes.

The San Mateo County area can be annexed to the Menlo Sanitary District which already has a main trunk into the area for sewage purposes. And gas and electric service will be provided by Pacific Gas & Electric Co. without added cost to the university.

Thus the main development cost as far as the university is concerned is construction of the major road net as well as main sewer, water, and gas lines. All other utilities will be supplied by individual developers or utility companies. Because of the amount of the costs incurred by the university in developing and planning the work, it will be some time before the project will be able to represent a net profit.

Stanford seems firmly committed to a development of the sort described in the foregoing. But there could be many changes. For example, the Veterans Administration is proposing construction of a 1,000-bed, $23-million hospital on Stanford lands. If this plan goes through, some of the residential lands would be taken for that purpose.

The VA proposal would tie in with a plan of the university to move its medical school from San Francisco to the peninsula campus. This move will involve upwards of $10 million in construction expenditures over the next five years.

Map business booms for Colorado

It wouldn't rate as really big business, but Colorado's Department of Highways broke all previous records for sales of highway maps in 1953—and is ahead of 1953 by $500 so far this year.

Total business done for the record in 1953 was $6,000, selling maps at 25 cents per single sheet (at less than full scale) $3.00 per sheet (at full scale).

The maps are in great demand (in order) by:

(1) Oil interests; (2) governmental agencies; (3) real estate, sales and similar corporations; (4) tourists, sportsmen and property owners.

• **Demand builds up**—The maps are accurate, up-to-date, cover the state completely. And demand for them has been building up steadily for more than 17 years — since the first county map tracing came off the boards of the department's Planning and Research Division, in 1936. Before the end of that year, demand for the maps had grown so great that the department decided it had to put a charge on the maps, to defray reproduction and research costs.

County maps, of course, are supplied free of charge to all divisions of the highway department, and to cooperating governmental agencies, such as the Bureau of Public Roads.

In addition to single-sheet scales, the maps are included in "Colorado Atlases", bound in heavy pressboard. These volumes contain all 130 of the regular county map series, plus 33 supplemental pages, a state map and a traffic volume map. They are sold at $30 each.

Most sales are made by telephone or by mail.

• **How done**—The full-scale county maps are made up on tracings and reproduced as blue line reproductions on white paper in the department's blueprint section. Sheets are 36 x 60 in. The smaller county maps are reductions of the full-scale tracings. Negatives and prints on the half-scale sizes are produced by outside lithographers, printed black lines on white paper 18 x 30 in., so that newer maps can be substituted for older ones in atlases or other bound collections held by individuals, state agencies, corporations and local governmental units.

All maps show culture and where possible in scale—blow-ups of congested areas are shown on regular sheets, or on separate sheets (for an extra 25-cent charge). The department does no mounting or backing.

M. A. Kahm, Mapping and inventory Engineer of the Planning and Research Division, is in charge of the mapping work.

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These four 600 cfm Gyro-Flo portables supply air power for operating up to eleven I-R wagon drills on this job. Air from the receiver is piped 700 to 800 feet to the drilling site through a 6" line. In left foreground is an I-R air powered Jackbit grinder.

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Now available in 125, 210, 315 and 600 cfm sizes, Gyro-Flo portables offer a new high in air power efficiency for practically any job. For the complete story, contact your nearest Ingersoll-Rand distributor or branch office.

2-28

Above are four of the FM-2 wagon drills supplied by the Gyro-Flo compressors shown at the top. Each drill is equipped with an I-R air hoist to facilitate movement of the drill carriage on the steep slopes

Brewster also uses three self-contained, self-powered and self-propelled I-R Quarry-masters for deep-hole drilling.

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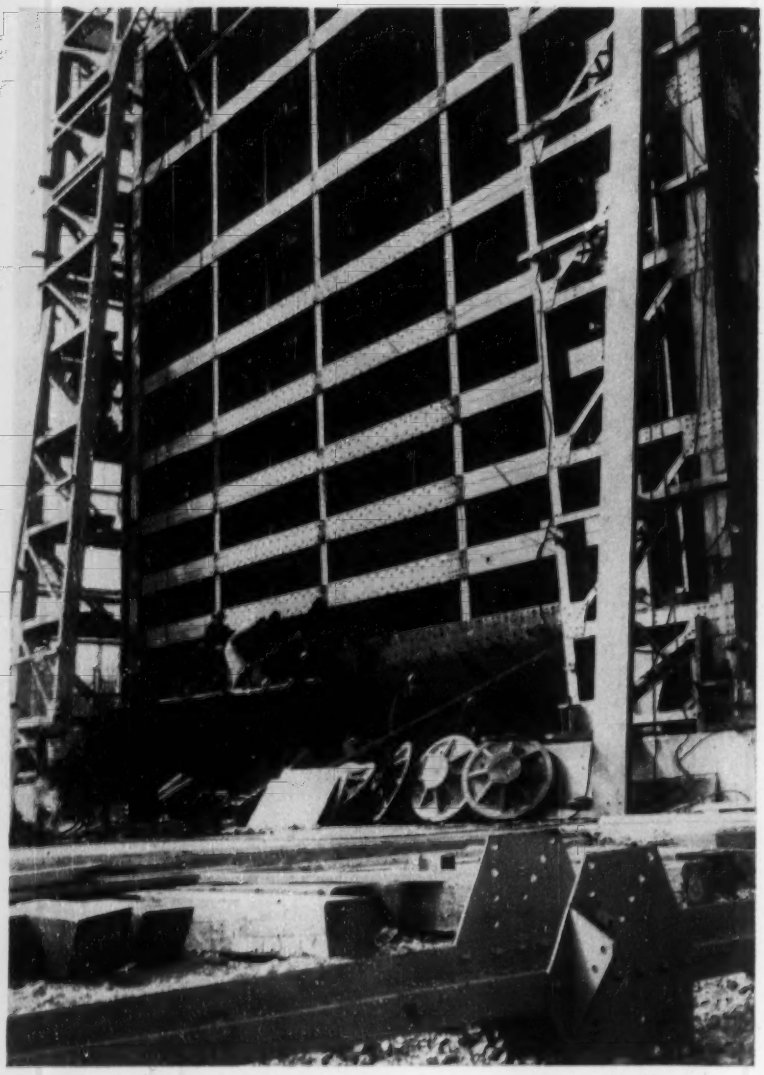


RIVETING IN FIELD included splice plate connecting sloping bottom of . . .

Record gates to control flow in tunnels at Niagara

Few hydraulically controlled gates are as heavy as 225 tons nor as large as 58 ft high by 45 ft wide. But Dominion Bridge Company of Canada has designed, fabricated and erected two such gates for the Hydro-Electric Power Commission of Ontario to control water entering the tunnels for new Sir Adam Beck generating station No. 2 near Niagara Falls, Ont.

The gates follow the usual Canadian design practice for penstock intakes. Each is made up of a structural steel frame of horizontal plate girders framing into vertical box-type end girders, with the skin plate downstream. Each has a pointed bottom to reduce vacuum effects at part opening. This sloping bottom is pierced with ample pressure balancing openings through which the water can circulate.

The downstream side of the gate is also vented at the bottom through the skin plate, by several 10 in. pipes extending to the atmosphere at the top of the gate.

The hydraulic load, resulting from 56 feet of head at the sill, is carried into the embedded steel roller paths by 42-in. chilled cast iron rollers with crowned faces. They have grease lubricated bronze bushings, which rotate on fixed pins of low alloy chrome-nickel steel.

• **Controlled opening**—When the basic design of the gate had been worked out, further consideration was given to the hoisting loads and type of hoist to be used. A rope hoist with a centrifugal fan brake controlling the lowering speed was specified originally.

A scale model of the gate and tunnel section was built by the customer. After numerous tests and mathematical computations involving the different conditions which arose during raising and lowering of the gate it was found that the lowering speed had to be reduced to 4½ in. per minute to avoid dangerous shock waves in the tunnel.

Therefore the decision was made to change over to the screw type of hoist, such as is used on most spillway gate installations in Canada. It was believed that the increased cost of the screw type hoist was justified, as complete closure will be very infrequent once the hoist is in service, and undiscovered internal corrosion of the ropes under such circumstances could lead to a disastrous dropping of the gate.

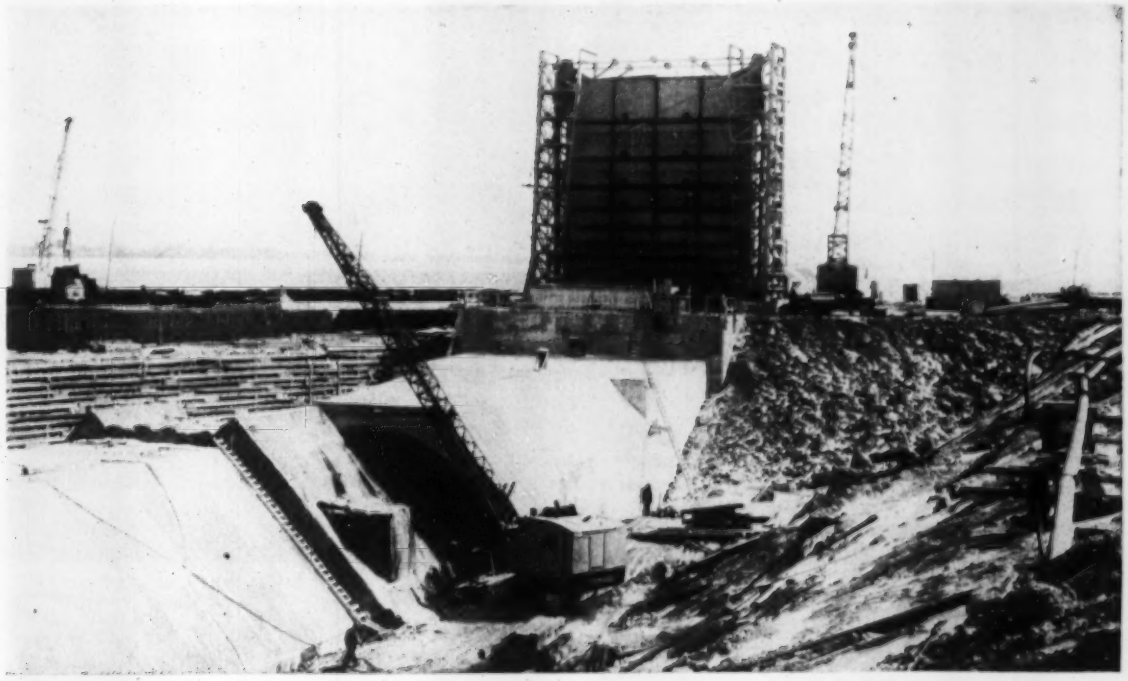
Screws are 10-in. diameter by over 71 ft long and consequently were a very serious procurement problem. Inquiries were sent to over 50 companies on this continent and in Great Britain, who were judged to be capable of manufacturing them. Most of these firms had such a backlog of work that they were unable to quote, but eventually the order for the screws and their matching bronze nuts was placed with the Camden Forge Co., Camden, N. J.

To transfer the load from the gate into the screws, offset lifting lugs of welded construction are riveted to the gate at each top corner. These lugs in turn rest on forged steel trunnions which house the bronze lifting nuts in which the screws rotate.

• **Sealed edges**—The gate is sealed at the sides by hard-drawn naval brass rod-type seals which are mounted on the upstream side of the gate. The seal rods, which are supported and restrained in a flexible manner, are forced into the gap between the gate and the embedded sealing angles by water pressure. The bottom seal is provided by the machined bottom of the gate bearing on the planed top of the sill beam. Continuity of sealing between the vertical seal rods and the horizontal sealing surface is preserved by rubber seals.

High pressure lubrication for the gate rollers and bronze lifting nuts is provided at each end of the gate by a battery of storage type grease guns. The hoisting nuts also are supplied with passages and connections for water cooling, should it be needed.

The gate is of riveted construction



NEARLY FINISHED GATE as seen from tunnel side had its supporting bridge partly erected, its lifting lugs and screws in place.

except in certain sections where welding proved advantageous. To avoid any risk of distortion all field joints are riveted rather than welded. They are calked where necessary for watertightness.

• **Assembled first in shop**—The gates were completely assembled and aligned in the shop, and essential check measurements were taken to guide field erection. They were then broken down for shipment, the heaviest piece weighing about 17 tons.

The embedded steel, which carries the roller loads into the concrete, is basically made up of a 0.40% carbon steel roller path on each side of the opening which acts as the outer flange of a welded box girder. This section, after stress relieving, is machined for its full 62 ft length.

The planed seal angle on the upstream side of the gate slot is connected to the downstream roller path by liner plates which form the outline of the slot. Heating ducts, extending several feet below the low water level, are built into the roller path and seal angle sections. A steel I-beam sill with machined top surface is used to join the two vertical side sections together. All sections were completely assembled in the shop to check their accuracy.

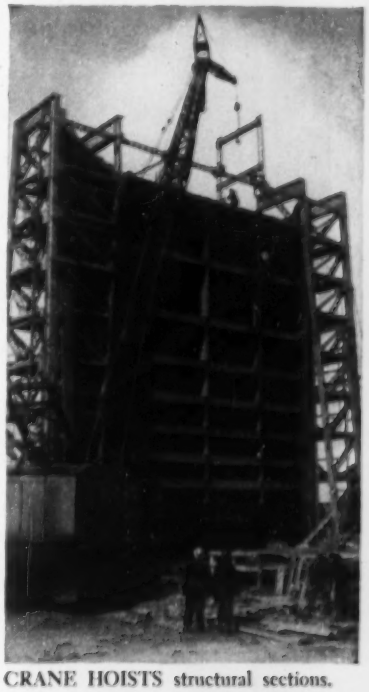
In the field, the sections were set up in the recesses provided in the mass concrete and accurately aligned by means of embedded anchors and connecting bolts. Dry packed concrete was then placed under the roller path sections, to transmit the load from the rollers into the mass concrete. The remainder of the space in the concrete recesses was filled with grout, the liner plates acting as formwork to give an accurately dimensioned working area for the gate.

• **Machinery bridge**—Lifting machinery is mounted in the top section of a structural steel arch above the gate opening. When lifted, the gate rises up into this arch. The machinery is driven by a 40-hp electric motor through a central gear case and cross shaft which leads to gear cases at each end of the machinery bridge. The end gear cases, containing spur bevel gears which rotate the lifting screws, also house large roller type self-aligning thrust bearings which take the load from the screws. All shafts are supported on ball or roller bearings.

Complete limit switch protection is provided at all points at which the gates must stop. In addition, emergency trip switches are furnished which stop the machinery if the gate meets with any obstruction when being lowered. The position of the gate at all times is shown on a height indicator.

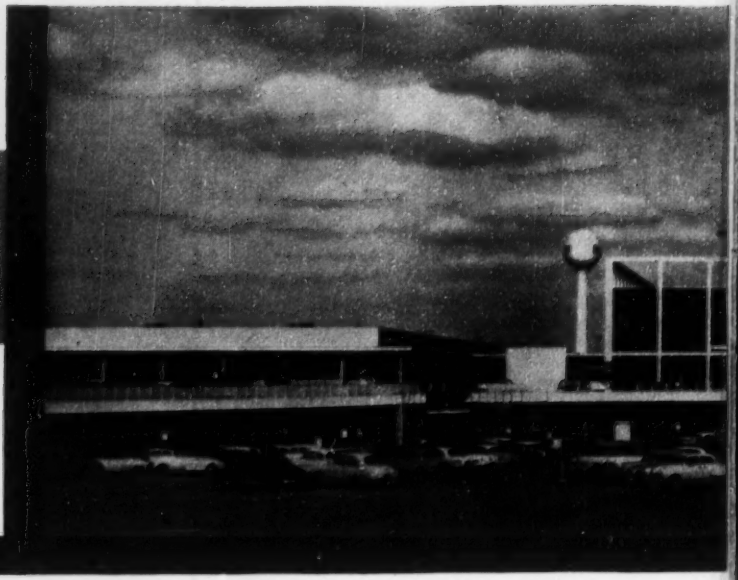
The fixed frame structural steel arch, about 75 ft high, is located in a public park area and is therefore very conspicuous. It was designed in close cooperation with HEPC's architectural department to give as pleasing an appearance as possible. It is completely sheathed with aluminum, thus eliminating the necessity for periodic painting.

Two sets of emergency steel stoplogs of welded construction with rubber seals also were supplied for the tunnels. Each stop-log is 8 ft high by about 47 ft long and averages about 25 tons in weight. Eight logs comprise one set.



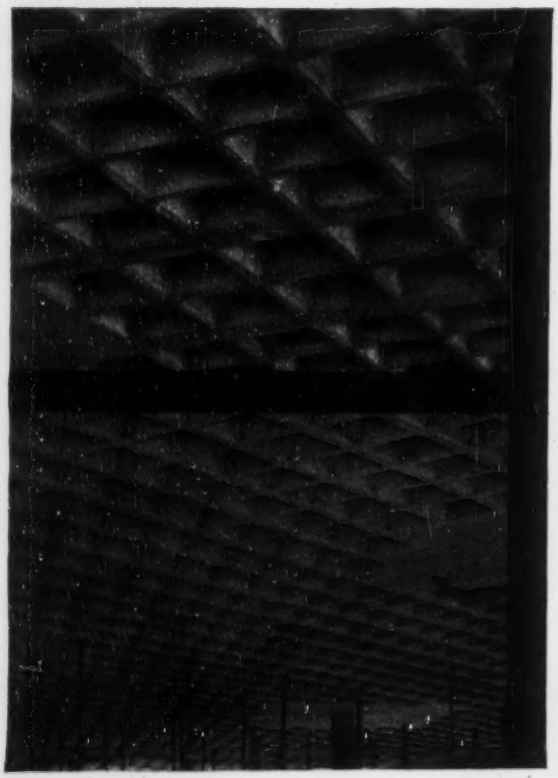
CRANE HOISTS structural sections.

Case history of CECO on-the-job performance



Architect: Victor Gruen Associated Architects & Engineers, Inc.
General Contractor: Bryant & Detwiler Company

waffle construction plus Ceco-Meyer Steelforms



How Ceco methods saved materials

■ When architect Victor Gruen developed the original concept of Northland Center, world's largest shopping district in suburban Detroit, he had an eye for beauty and function. Beauty that would make the center a pleasant and even inspiring place to shop. Function that would make shopping as convenient and effortless as possible.

J. L. Hudson Company's branch department store is the core of the development—and here one of the major requirements was providing the greatest amount of usable space by keeping interior columns few in number and small in size. Typical spans were 29'-1" each way, and a waffle design using 14" deep Ceco-Meyer Steelforms provided a ceiling clear of beams, and kept steel, concrete and dead weight to the minimum. The saving in steel alone was 16% when compared with solid flat slab construction.

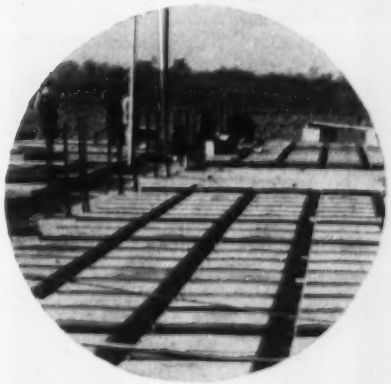
In other areas of the Hudson store and in the tenant and the service group buildings, one-way Ceco-Meyer Steelform floor

minus "lazy" concrete equals 16% steel savings-

construction accounted for similar steel savings, eliminated "lazy, non-working" concrete, and kept dead load low.

Overall result in all buildings: wide areas of uninterrupted space —clear ceilings—a pleasing effect—highly functional. Ceco Engineering Service detailed placing plans for Ceco-Meyer Steelforms and reinforcing bars. This was a big project—5,000 tons of Ceco reinforcing steel delivered by truck to the job site—1,000,000 square feet of steelforms placed and removed by Ceco—a job requiring the service of a company skilled in its field and geared to deliver as the need dictated.

Here is another example of Ceco performing on the architect-owner-contractor-supplier team. On your next project call Ceco Product Specialists. They will help you save through product engineering. Consult Sweet's File for address. CECO



Two-way waffle design using Ceco-Meyer Steelforms permits longer spans, resulting in larger uninterrupted floor areas.

One-way Ceco-Meyer Steelforms also save steel and concrete, thus reducing dead load.

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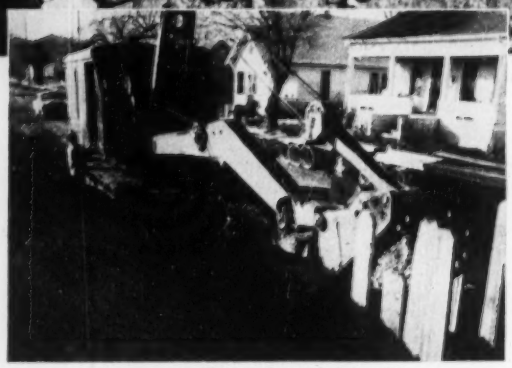

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Attachment digs flared trenches

The addition of an extra sprocket and a pair of eccentric-operated knives to a standard Auburn trencher has resulted in a piece of equipment capable of digging flared trenches. The unit has proven particularly useful in the preparation of footing trenches for basementless houses where it is usually necessary to dig a trench 2 or 3 ft wide, place the footing and then lay cement blocks or other material up to grade.

The attachment can dig a 5-ft deep trench 8 to 10 in. wide with a 12 to 14-in. wide flare at the bottom. The developers were able to excavate a 3 to 3½-ft deep trench at about 175 ft per hour.

The extra sprocket is driven from the drive chain and in turn rotates the eccentric crank; the eccentric oscillates the flaring knives through a mechanical linkage. It is reported that this arrangement is easily pulled by a Ford tractor and will dig itself into the ground. No prepared hole is required to start operations, thus one step is eliminated and time saved.

The additional parts required are available from a Lincoln, Neb., machine shop for about $250. Erwin E. Peterson, Pres., Peterson Constr. Co., 2263 Y St., Lincoln 3, Neb.

Power digger drive bar insulated by plastic tube

Power company crews operating hole digging equipment along highways and rural roads have many times been jeopardized by the presence of energized primary wires strung over the working area. The tall steel drive bar of the power digger often came dangerously close to the wires and sometimes touched them with resultant loss of life.

The California Oregon Power Co. solved the problem by insulating the upper 6 ft of the drive bar with a piece of Micarta plastic tubing. The tube extends about 9 in. above the drive bar and is held in place by a split steel band.

A WELDER'S TORCH STARTED *BOTH* OF THESE *FIRES*

One was the biggest single plant fire in history. Touched off by sparks from a welding torch, it took three lives, injured thirteen, and destroyed a relatively new $35,000,000 "noncombustible" building.

The fire at the Meier & Pohlmann Furniture Company plant, St. Louis, Mo., started the same way. Sparks from a welder's torch . . . ignited highly flammable lacquer fumes. Why didn't this plant *too* go up in smoke? A Grinnell Automatic Sprinkler System extinguished most of the flames before firemen arrived.

Most fires start small. They can be brought under control if properly attacked within the first few minutes. Grinnell Sprinklers stop fire at its source, wherever and whenever it strikes, night or day, with *automatic* certainty. Seventy-six years experience proves this.

Remember, a Grinnell System often pays for itself in a few years through reductions in insurance premiums. So if you have fire insurance, you are probably paying for Grinnell Protection anyway . . . *why not have it!*

A Grinnell engineer will gladly advise you on the proper Grinnell System to protect *your* property. Write Grinnell Company, Inc., 258 West Exchange Street, Providence, Rhode Island.

HERE IS A PARTIAL LIST OF THE DIFFERENT FIRE PROTECTION SYSTEMS WHICH GRINNELL CAN ENGINEER TO FIT YOUR PARTICULAR NEED . . .

- ***Wet-Pipe "Spray" Sprinkler System.*** Where temperatures remain above freezing.
- ***Dry-Pipe "Spray" Sprinkler System.*** Where temperatures may go below freezing.
- ***Multitrol System.*** For faster application of water in extra hazardous areas.
- ***Textile Opener Room System.*** For flash fires in opened cotton bales.
- ***Mulsifyre System.*** For fires in heavy as well as in medium oils.
- ***ProtectoSpray System.*** For fires in light and medium oils — many special hazards.
- ***ProtectoFoam System.*** For fires in gasoline and other highly flammable liquids.
- ***Fire Protection Specialties.*** Window sprinkler, sprinkler guard, fusible links.

GRINNELL

PROTECTION AGAINST EVERY FIRE HAZARD

Manufacturing, Engineering and Installation of Automatic Sprinklers Since 1878

Photos by Eastfoto

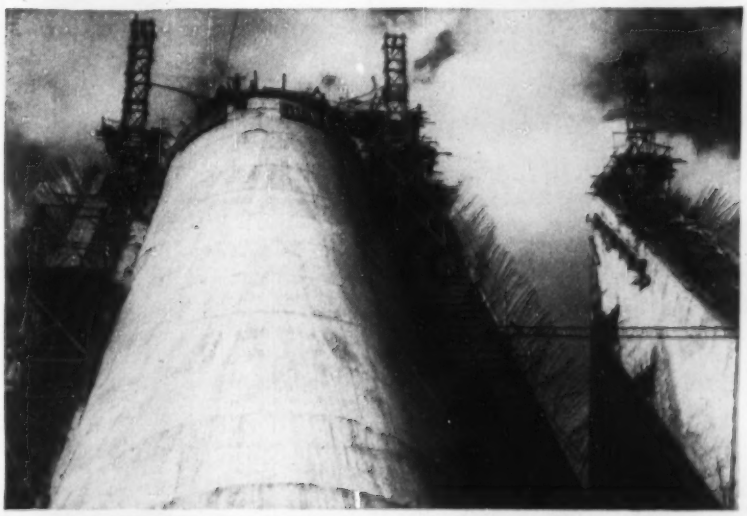
MULTIPLE-ARCH Futseling Dam on the Pei Ho River, China, is 1,700 ft long.

China pushes flood control project to help tame Huai basin runoff

Nearing completion on a tributary of the Huai River, about 300 miles due west of Shanghai, China, is the first multiple-arch dam to be built in that country. The reinforced concrete structure 1,700 ft long and 243 ft high was started in November, 1951. Comprising 21 semi-circular barrel arches resting on triangular dam piers, the dam will impound Futseling Reservoir to control the runoff of the Pei Ho River into the middle reaches of the Huai River in Anwei province.

The dam incorporates features to allow the installation of generating equipment in the future. Diameter of the barrel arches is about 80 ft.

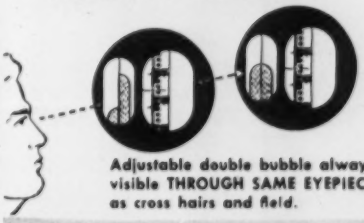
(*Continued on page* 48)



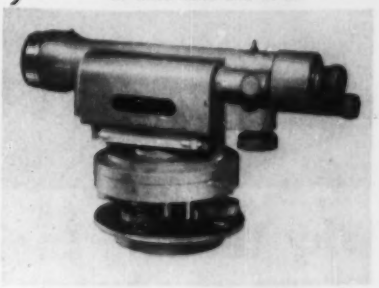
BARREL ARCHES are 80 ft in diameter, and the tallest rises 243 ft above river.

SURVEYING NEWS

NEW LEVEL WITH DOUBLE BUBBLE IS "MISTAKE-FREE"



Adjustable double bubble always visible THROUGH SAME EYEPIECE as cross hairs and field.



- No need to turn telescope during leveling
- No need to look anywhere but through telescope to adjust level at any turn after initial set-up
- American type — erecting eyepiece, 4 leveling screws
- Unbelievably fast and accurate, yet simple-to-use. Economical!

Mail this coupon for details

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INSTRUMENT CORP. OF AMERICA
11-27 44th St., LONG ISLAND CITY, N. Y.

Please send me Booklet A with information on Fennel . . .

☐ Double bubble ☐ Alidades
☐ Other levels ☐ Callimeters
☐ Transits ☐ Stands
☐ Combinations ☐ Tripods
☐ Theodolites ☐ Repair of my present instruments

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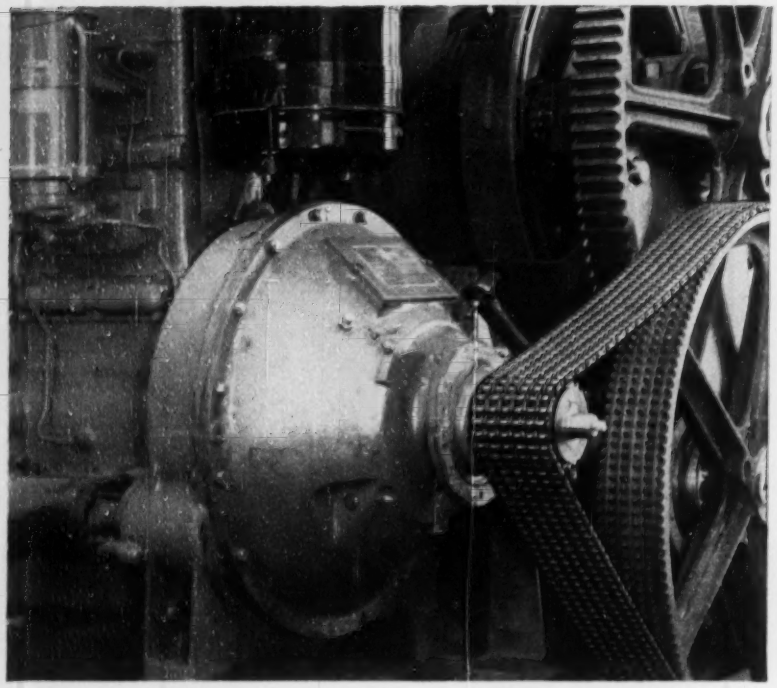
ADDRESS .....



Why Leading Engine Manufacturers STANDARDIZE ON TWIN DISC Power Take-Offs

Next time you're watching powered equipment driving through a friction power take-off, check the name plate on the drive back of the engine. In all probability, you'll see a Twin Disc Power Take-Off, putting *more horsepower to work.* With their simple, *rugged* design—single-point adjustment—and slippage capacity far in *excess* of horsepower rating, *Twin Disc Power Take-Offs are selected as standard equipment by most of the nation's leading industrial engine manufacturers.*

That's why you'll find Twin Disc Power Take-Offs on such leading industrial engines as Ajax - Buda - Caterpillar - Climax - Continental - Cummins - Hercules - International - LeRoi - Minneapolis-Moline - Murphy - Superior - Waukesha - White - Wisconsin . . . for these manufacturers know they can depend on Twin Disc performance . . . and they know, too, that wherever their engines may be ultimately working, Twin Disc Service will only be a matter of hours . . . backed by 60 Parts Stations and 8 Factory Branches or Sales Eng. Offices.

Twin Disc Power Take-Offs are available with clutches ranging from 6.5" to 24" single-plate; from 11.5" to 24" double-plate. Housing sizes No. 6 SAE to No. 00 SAE. Capacities up to 600 hp. Write for Bulletin No. 129-C.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

Branches or Sales Engineering Offices: Cleveland • Dallas • Detroit • Los Angeles • Newark • New Orleans • Seattle • Tulsa

INTERNATIONAL

The Futseling Dam is one of a number of projects being carried out in the Huai basin to reduce disastrous floods along the river. The Huai basin is inhabited by 55 million people and contains 60 million acres of cultivatable land which have been flooded frequently in the last few centuries.

At the end of the 15th century, to the north of the Huai basin, the Yellow River broke its main dikes in Honan Province and plunged southeastward across country into the Huai River bed. For over 300 years the people of the valley fought inundation from the enlarged Huai River by building dikes along its banks. In 1851-1853 the Yellow River turned back to its original bed and left parts of the Huai River stream bed—heavily silted by the Yellow River's flow—high above the plain around it.

People along the old stream bed of the Yellow River were unprepared for the disastrous floods of a great river, and in 1887, a particularly heavy flood year in China, the Yellow River burst its dikes in Honan Province and destroyed millions of lives. Subsequent measures of the Chinese to control the Yellow River were inadequate until, in 1938, part of its flow was again diverted down the Huai, thereby splitting the heavy floor-crests built up in Mongolia. The system of dividing the two flows continued until 1946 when new and extensive flood control projects got under way.

Afghanistan considers M-K for Helmand Valley contract

Morrison-Knudsen is negotiating with Afghanistan for a contract covering construction of the third phase of the Helmand Valley irrigation and power development project.

The new program—a three year one—is expected to cost $25 million. To help finance the work, Afghanistan recently borrowed $18.5 million from the Export-Import Bank.

These are the major features of the program:

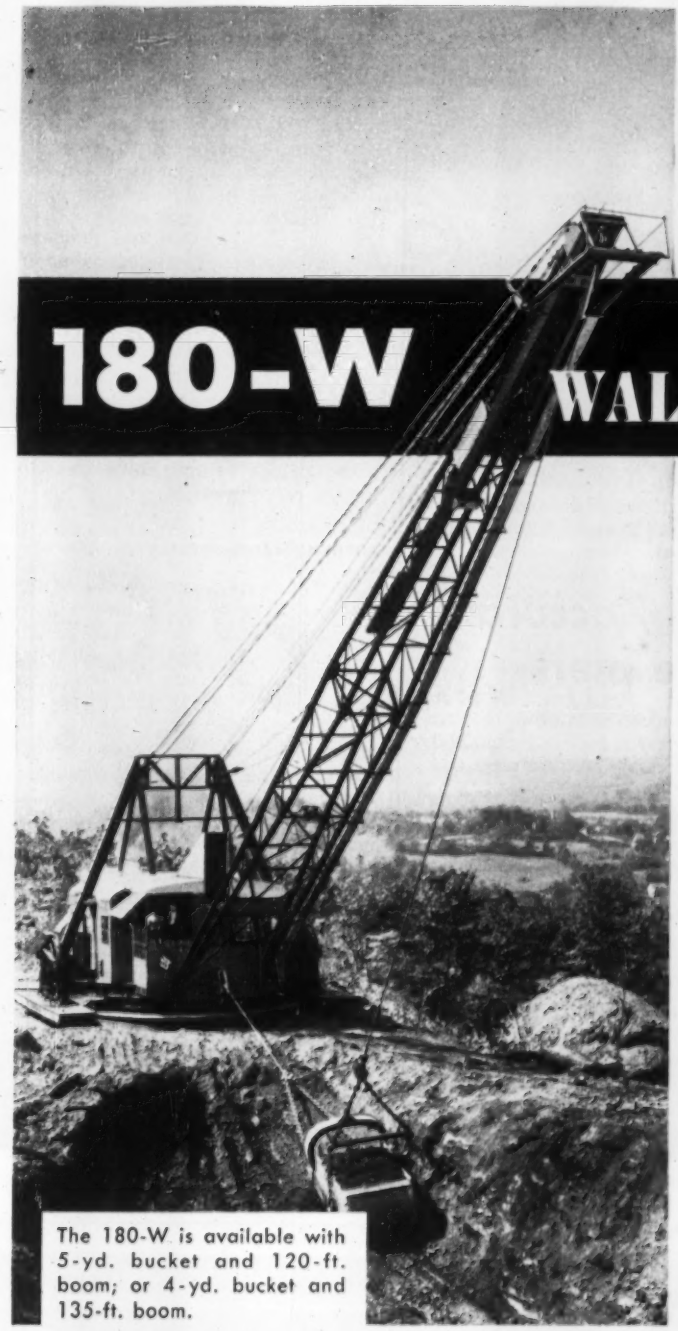
1. Irrigation in South Arghandab, Boghra, Tarnak Marja, Seraj and Darweeshan areas, including the construction of canal intakes, main canals, lateral canals, drainage outlets, lateral drains and in the south Arghandab area, a diversion dam.

2. Hydro-electric power facilities, including the installation of two 3,200-kilowatt generating units at the Arghandab Dam with transmission and distribution facilities to Service the

(Continued on page 50)

Readily Dismantled
Readily Assembled

180-W 5-cu. yd. WALKING DRAGLINE



The 180-W is available with 5-yd. bucket and 120-ft. boom; or 4-yd. bucket and 135-ft. boom.

Now you can put real high-capacity digging ability to work wherever your job takes you. The Bucyrus-Erie 180-W walking dragline offers unmatched ease of erecting and shipping for a machine of this type.

Only partial disassembly is necessary for moving from one job to another — the entire machine is easily loaded on five U. S. railroad cars. This not only saves time and expense in moving, but increases the machine's value throughout its entire life.

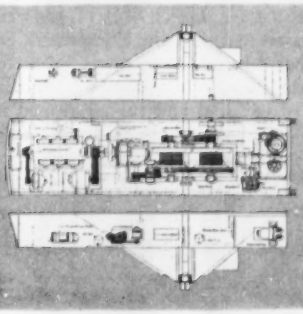
In addition to its exceptional portability, the 180-W offers dependability, big output, long working reach, maneuverability and low maintenance for which Bucyrus-Erie draglines have earned an outstanding reputation. Send for complete information. 14L54

BUCYRUS ERIE

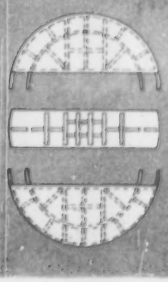
South Milwaukee, Wisconsin, U. S. A.

Entire Dragline Easily Loaded On Five U. S. Railroad Cars

Side wings unbolt from center section of revolving frame. Main machinery remains fully assembled and in proper alignment.



Base is in three separate welded-steel sections, joined by bolting flanges — easily disassembled and shipped.



(*Advertisement*)

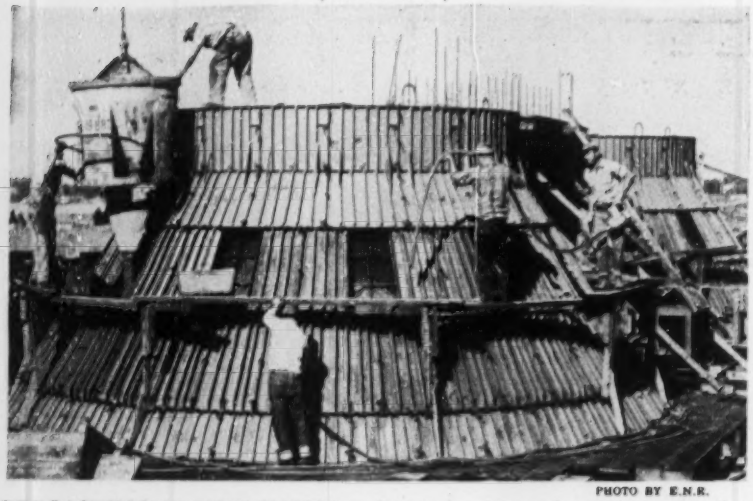


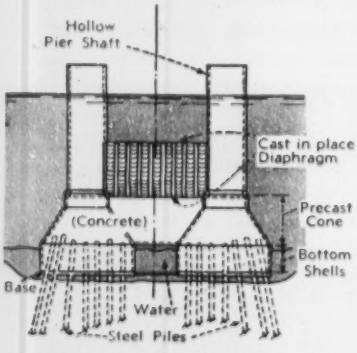
PHOTO BY E.N.R.

PRECASTING 90-TON SHELLS to be used as part of concrete piers for Richmond-San Rafael bridge requires thorough vibration to produce dense, high strength concrete, accurate finished surfaces, and prevent voids inside the sloping forms. Windows aid concrete placement.

Vibration makes strong, accurate precast shells for bridge piers

Precast reinforced concrete shells assembled underwater and filled with tremie concrete will provide 53 of 62 deep water bell bottom piers for the Richmond-San Rafael bridge on San Francisco Bay. Joint venture contractors Ben C. Gerwick, Inc. and Peter Kiewit Sons Co. developed the technique in preference to using steel shells that cannot be recovered. State engineers estimate that the design saves about $1 million over conventional methods investigated.

Reusable steel forms and careful placement and vibration produced uniform close tolerance surfaces and dense concrete free of voids on this job. These are just as important in other modern concrete techniques such as precast and prestressed girders, pressure pipe, and architectural work.



ASSEMBLED PIER consists of a base, a cylindrical bottom shell 9 feet high, the truncated cone section (cast in pairs, connected by a rectangular diaphragm) and a hollow cylindrical shaft, all precast. Entire structure is filled in place with tremie concrete.

• **Thorough vibration** is an essential part of the careful casting technique needed to produce the strength and accuracy required by the job. The shells, which vary from 14 to 34 feet in diameter, are cast in a yard about twenty miles from the bridge site, barged to the site and handled by a floating derrick. Vibration with VIBER high speed internal vibrators gives dense concrete, well bonded to reinforcing steel. This makes the shells salt water resistant to minimize steel corrosion and strong enough to be handled by lifting.

Accuracy of finished surfaces on the shells is doubly important. True surfaces make assembly underwater much easier. Good fitting joints also keep to a minimum loss of tremie concrete when the shell is filled after it has been assembled in place.

• **For complete details** on this interesting job refer to Engineering News-Record, March 4, 1954, and Construction Methods and Equipment, December 1953, March, April 1954. For information on the complete VIBER line of external and rubber tipped internal vibrators contact your authorized distributor, or VIBER COMPANY, 726 South Flower St., Burbank, California.

VIBER

CONCRETE VIBRATORS SINCE 1931 •

INTERNATIONAL

city of Khandahar, and the installation of two 1,500-kilowatt generating units at the Boghra Canal drop near Girishk with transmission and distribution facilities to serve the towns of Girishk and Shari-Helmand.

3. Interproject access roads.

4. Engineering, soils and drainage surveys required for the agreed-upon Helmand River and Arghandab River valley project areas and for such other agricultural and industrial surveys in said areas.

The second part of the Helmand Valley project—mainly irrigation works—was started by M-K in 1950 (see ENR Feb. 21, 1952, p. 45). Later phases of the program call for the addition of power-generating facilities.

International briefs . . .

• **St. Lawrence tunnel**—Quebec City has granted a franchise for building a $30-million tunnel under the St. Lawrence River from Quebec to Levis, a distance of one mile. The franchise would permit Wilbrod Langlais, a Quebec manufacturers' agent, to construct and operate the tunnel—and to pass on his rights to a company formed to handle the project. After 50 years, all buildings and installations belonging to the tunnel would become the property of the two cities.

• **Caroni River survey**—Venezuela's Caroni Electrification Commission has hired Aeromapas Nacionales of Caracas (associate of the Photographic Survey Corp., Ltd., of Toronto) to make a one-year air survey covering 90,000 acres along the Caroni River. The air maps will guide hydro development plans for the 400-mi waterway.

• **Pipeline over the Po**—Europe's longest aerial pipeline for natural gas—a ¾-mi. one built in Italy on a special cable bridge that crosses the Po River—has been tested and passed. The test—to try the strength of the weldings—was made by injecting 80 tons of water under high pressure of 96 atmospheres. The $850,000-project can convey 3,000,000 cu meters of methane gas per day.

• **Road progress report**—A progress report on construction of the 4,187-mi Trans-Canada Highway through 9 of Canada's 10 provinces (excluding Quebec) shows that 1,237 mi have been completed and 1,458 additional miles have been approved for construction. Alberta and Saskatchewan, having completed 466 out of a total of 706 mi, are expected to finish their portions by 1956.

Unretouched photograph of clogged intake at the Old Badger Plant, City of Kaukauna, Wisconsin (not mechanically cleaned). Compare this with the New Badger Plant (at left.).

New Plant mentioned in which intake is cleaned with a Leonard trash rack rake. Both plants draw water from the same canal.

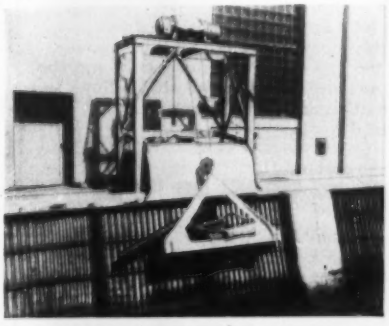
MAINTAIN *MAXIMUM HEAD*

SAVE POWER LOSSES AND OPERATING EXPENSES with the

LEONARD TRASH RACK RAKE

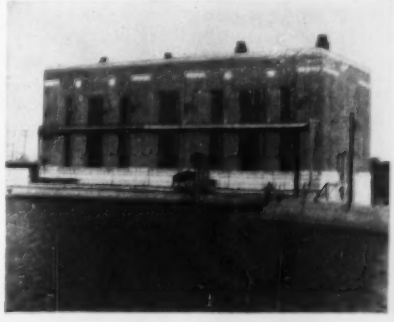
THIS DEVICE IS USED AT INTAKES TO HYDRO-ELECTRIC PLANTS, STEAM POWER PLANTS AND PUMPING STATIONS to remove river grass, lily pads, branches, logs, pulp wood, or other extraneous matter which gather on the racks to obstruct the water supply.

LEONARD raking equipment is specified by many of the country's leading Engineers, as well as public works agencies such as the U. S. Engineers, and Bureau of Reclamation. Write for our Bulletin 158 and list of installations.



Left. Leonard raking unit at the St. Mary's Falls Hydro-Electric plant, Michigan; a U. S. Engineers project.

Right: View of forebay and power house at the Thilmany Plant, City of Kaukauna, Wisconsin. In addition to the Leonard rakes at this plant and the New Badger plant, the City also has one at its Little Chute plant.



POWER by SMITH — 16,000,000 HP

76 YEARS EXPERIENCE DESIGNING AND MANUFACTURING HYDRAULIC TURBINES AND ACCESSORY POWER PLANT AND PUMPING STATION EQUIPMENT

S. MORGAN SMITH CO. York, Penna., U.S.A.

Stop Dry Weather "Wear Off" of Materials with STERLING ROCK SALT

Keep Summer Roads Hard, Dense, Tight and Stable!

Proper stabilization with STERLING ROCK SALT and clay gives road wearing surfaces the flexibility to adapt themselves to the weather—hot or cold, wet or dry. For rock salt is Nature's own soil stabilizer.

In hot, dry weather, STERLING ROCK SALT rises, crystallizes—and firmly "anchors" the clays and fines at the wearing surface. That's why, even after prolonged dry spells, a Sterling stabilized road will show a tough, firm surface.

So don't let a lot of your work and the taxpayer's money go up in dust this summer. Prevent the loss of surface materials—and the extra repair and maintenance that follows in the wake of summer dust clouds on unstabilized roads.

INDUSTRIAL DIVISION, DEPT. EN-6
INTERNATIONAL SALT COMPANY, INC., SCRANTON 2, PA.

☐ Please send Road Stabilization literature.
☐ Please have representative call.

Name_____

Company_____

Street_____

City_____ Zone_____ State_____

Plan now to stabilize with STERLING ROCK SALT. For information on up-to-the-minute methods—old roadbeds or new construction—fill out and mail the coupon at left.

INTERNATIONAL SALT CO., INC.
INDUSTRIAL DIVISION
Scranton, Pennsylvania

STERLING ROCK SALT
"Nature's Own Soil Stabilizer"

Medical Towers building announced—new addition to $125-million center

Latest announced unit of the Texas Medical Center in Houston, is the 17-story, $4-million Medical Center Towers building. The office building, an honor winner for its design, will occupy most of a 50,000-sq-ft site with its lower stories while the centrally located tower portion will rise as a glass skinned, sheer-walled block.

The site is near the main entrance to the $125-million center (ENR Dec. 29, 1949, p. 14).

• **Laid out by doctors**—The interior of the tower, designed to accommodate 175 doctors' offices, was laid out by doctors. It is, therefore, "custom tailored" for and by the medical profession.

An advisory board of 10 medical men—each of a different specialty—submitted what it considered the best arrangement for an office designed to meet the exclusive requirements for each medical branch. In addition, the American Medical Association suggested office floor plans to be considered.

Architects then wrapped up the package, adding all the vital features to be incorporated into small, medium and large offices. Each tenant will be able to select the space that will best serve him through a choice of module unit layouts.

• **Parking**—Parking space for 600 cars will be provided in the lower part of the structure—estimated daily capacity is about 1,800 cars, based upon a presumed turnover of three cars per space per day.

The driveway will be arranged to permit car-borne patients to alight from their cars, protected from weather, take a convenient elevator to the doctor's office and have their cars waiting at the end of their visits.

• **Air conditioning**—Each room of every office will have an individually controlled air conditioning unit.

This arrangement will enable the doctor to maintain the reception room temperature considerably lower than that of the dressing rooms or the adjoining examination rooms.

All air throughout the building will be charcoal filtered for health protection and mental ease—an important feature in a hospital or doctor's office.

• **Solar control**—Windowed walls—predominantly glass will control the sun's rays to prevent solar penetration. Ver-

(*Continued on page 54*)

GRACE
Asphalt and Compaction Equipment

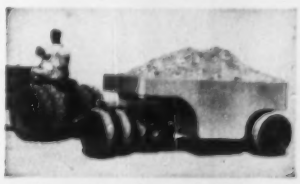
3 sweeper models, axle, engine or tractor powered.

Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.

Rapid Fire circulating heaters heat and unload large tanks of asphalt.

Sheepsfoot Rollers 250 to 600 psi.

Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.

6015 S. LAMAR DALLAS, TEX.

DO YOU USE OR MAKE ANY OF THE PRODUCTS IN THIS LISTING?

List of Users

The types of industries listed are all repeat users of **Tru-Lay Push-Pull Controls.** Experimental applications are not shown.

Agricultural Equipment
Air Conditioning Equipment
Aircraft & Parts Automobiles
Bakery Equipment Boats & Ships
Bottling Machinery
Brewing & Distilling Equipment
Business Machines
Buses & Motor Trucks
Candy Making Machinery
Canning Machinery
Ceramics Machinery
Chemical Processing Machinery
Coal Mining Machinery
Coin Operated Machines
Construction Machinery
Dairy Products Machinery
Dental & Surgical Equipment
Die Casting Machinery Diesel Engines
Drinking Water Coolers
Electrical Appliances
Electrical Generating Equipment
Electrical Machinery
Electrical Transmitting Equipment
Electronic Equipment
Elevator Control Panels
Fire Protection Equipment
Food Processing Equipment
Forging Machinery
Foundry Equipment
Gas & Oil Production (Test Stands)
Glass Making Machinery
Grain Processing Equipment
Hat Machinery Heating Equipment
Hydraulic & Pneumatic Equipment
Ice Cream Making Machinery
Laundry & Dry Cleaning Equipment
Leather Working Machinery
Lumber & Saw Mill Machinery
Marine Equipment
Materials Handling Equipment
Metal Mining Machinery
Metal Working Machinery—Machine Tools
Military & Naval Equipment
Motorcycles & Bicycles
Nuclear Science Equipment
Oil Refinery Equipment Ordnance
Packaging Machinery
Paint Making Machinery
Paper Making Machinery
Photo Equipment (manufacture)
Plastics Fabricating Machinery
Plastics Producing Machinery
Power Plant Equipment
Printing & Binding Machinery
Quarrying Machinery
Radio & Television (manufacture)
Railroad Equipment
Road Building & Maintenance Equipment
Rubber Processing Equipment
Safety Locks on Fuse Panels
Sanitation Plumbing (Floor Valves)
Shoe Machinery Steel Mill Machinery
Telephone & Telegraph Machinery
Textile Machinery
Waterworks Equipment
Welding Equipment
Wire Making Machinery
Woodworking Equipment
X-Ray Machines

Whether your interest is in a single application of this versatile

PUSH-PULL CONTROL

or in its inclusion as a component of the product you manufacture, we would welcome your request for our DATA FILE for your further study.

Because TRU-LAY PUSH-PULL CONTROLS are "SOLID as a rod but *FLEXIBLE* as a wire rope" their use has simplified the design and improved the operation of literally hundreds of products as indicated in the accompanying list of repeat users.

These fine controls are designed, and painstakingly built, to have the qualities of ACCURACY, HIGH LOAD CAPACITY, FREEDOM FROM TROUBLE, LONG LIFE, FLEXIBILITY . . . they are frequently and successfully used in conjunction with electrical, hydraulic and air controls . . . they are thoroughly effective under almost any operating condition.

Here are some of the jobs they handle well . . . HOT jobs on jets and industrial furnaces . . . COLD jobs down to −70°F. . . . WET jobs in food processing and marine applications . . . DIRTY jobs in cement mills and coal mines . . . CORROSIVE jobs in chemical processing . . . HEAVY, TOUGH jobs on construction machinery . . . LIGHT DUTY jobs on business machines, drinking water coolers . . . REMOTE jobs 150 feet or more from control point . . . they DAMPEN VIBRATION to protect delicate instruments . . . and LUBRICATION of the inner, working member is taken care of *for life* during assembly.

• The six booklets and bulletins in this DATA FILE will answer further questions you may have about this versatile and dependable tool, and will also provide you with the means of defining to us the application you may be interested in.

Write for a copy without obligation

DATA FILE

ACCO

AUTOMOTIVE and AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

601-F Stephenson Bldg., Detroit 2 • 2216-F South Garfield Ave., Los Angeles 22
929-F Connecticut Ave., Bridgeport 2, Conn.

tical fins and horizontal shields have been woven into the fabric of design, providing this control as well as enhancing the beauty of the building.

Lighting, both natural and artificial, will give proper color values for diagnosis, observation and treatment.

Unlike most medical office buildings, the Medical Towers has been planned around the doctor and the patient. Martin Nadelman, of Houston, the builder, and architects Golemon and Rolfe, also of Houston, call the structure the "building with the bed-side manner."

Los Angeles goes out hunting for cheats

Investigation of alleged bribery by inspectors of the Los Angeles Department of Building and Safety was touched off recently with the arrest of an inspector and a union official.

Two contractors—W. W. Whitehead and Tume Hacker—charged that they had been forced out of business in Los Angeles by pay-offs demanded by the two men for approval of plastering jobs.

The arrested men are Earl S. Groves, plastering inspector, and Joseph Micelli, business agent for the AFL hod-carriers. Micelli was named as go-between for Groves.

The district attorney's office and the city police bunco squad, which were cooperating in the investigation, reported that there were indications that other inspectors in the department were guilty of soliciting and accepting bribes.

District Attorney S. Ernest Roll predicted that the matter would be turned over to the county grand jury. He asked other contractors who might have been approached for bribes to come forward with testimony.

Groves was immediately suspended by Gilbert E. Morris, head of the Building and Safety Department. Morris said his department was thoroughly investigating the charges.

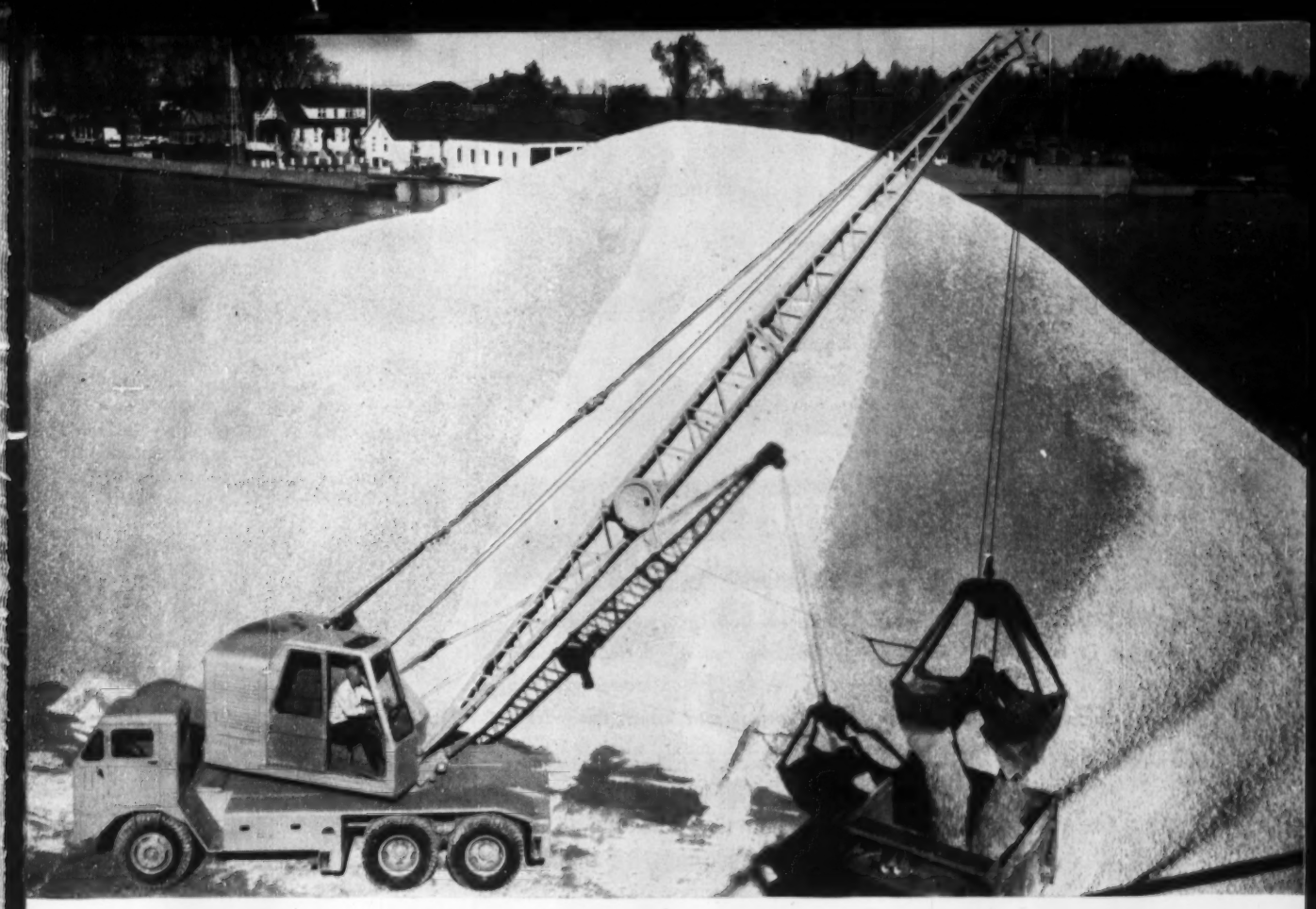
New seaport for Miami, Fla., will create bayfront land

Approved by circuit court and pending in the Florida State Supreme Court is the transfer of administration of the city of Miami's seaport to the Dade County Port Authority.

The transfer will be made July 1 if the ratification carries as expected.

Under the deal, the authority will build a new seaport, with 35-ft channel and slips on islands farther out in

(*Continued on page 56*)



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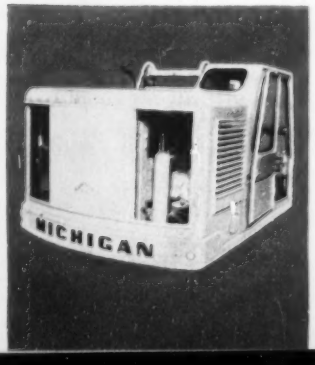
Step into a MICHIGAN* cab, and sit in the operator's comfortable seat. Notice how easy it is to follow every move on the job. 3604 square inches of glass!—see what excellent vision is provided, in all directions and overhead.

Here, indeed, is a masterpiece of smart modern design: a truly functional cab—fully ventilated, quiet; a comfortable cab designed to make the operator's job as easy as possible. Look, also, at the outside of the cab; at the adjustable louvers on both sides for good ventilation; the sliding rear doors that make it easy to get at the engine; the rear window to complete the full-vision facility.

For an easy point-for-point comparison of the MICHIGAN with other machines, send for the MICHIGAN Fact Folio: contains full information, including an interesting book "More Yardage Through Air Power." The coupon gets prompt action.

**A Trademark of Clark Equipment Company*



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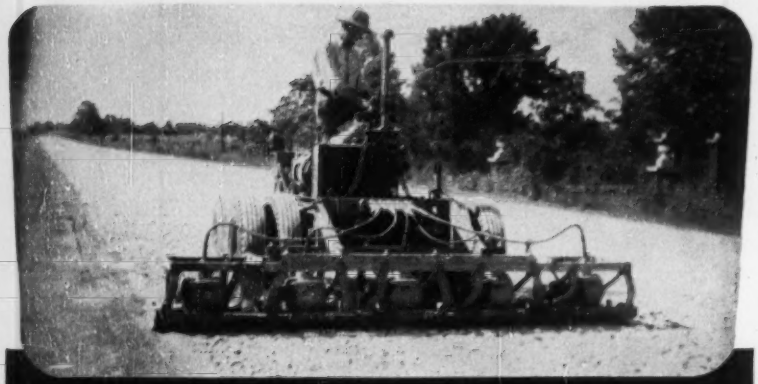

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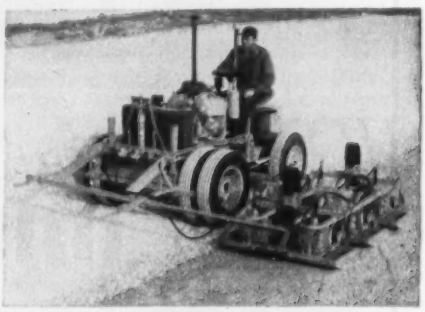
COMPACTS WIDENING STRIPS IN ONE PASS . . .

IN ANY GRANULAR MATERIAL used in flexible base-course widening. For this purpose compacting units are assembled in tandem, (3 deep, single or double row) and towed at side of tractor. Compactor bases of 12" and up may be substituted for standard 26" bases to suit requirements.



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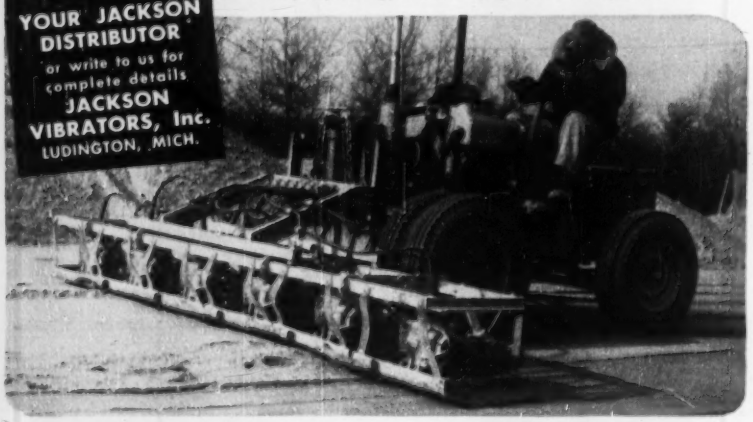


Biscayne Bay. The present 33-acre port property will be sold to private interests.

Plans call for three existing slips to be filled in, creating 15 additional acres of bayfront land. Price to be paid to the city will be determined by three independent appraisers.

• **No detailed plans for new port**—To date the county has released no detailed plans for the new facilities, but officials have considered spending $15 to $20 million initially. The authority, however, has announced plans to finance the new port in part with revenue bonds totaling $24.1 million (also before the courts for ratification).

The proposed bond issue is "open-end", said by the port director A. B. Curry, to be the first of its kind in the United States.

Cost of disposal goes up—plan changes go to voters

Citizens of Raleigh, N. C., will be asked in a mid-summer bond election to approve an additional issue of $2.5 million in bonds for the construction of a sewage treatment plant.

Following a court order in 1949, requiring the construction of the plant before Jan. 1, 1955, Raleigh voters approved a $1,347,000-bond issue, but since then, increased residential growth and the settlement in the area of industrial plants—including Westinghouse and American Woolen Co.—have caused engineers to change their estimates.

City Manager W. H. Carper told city councilmen that the proposed plant would cost $3,422,000. This would include the cost of the plant itself ($2,100,000) plus the outfall lines, pumping station, land costs, sewer line encasements, engineering, legal and contingency costs.

Raleigh, which dumps its sewage raw into the Neuse River, has been under order to rectify the situation since 1934.

Authority buys railroad land as cheaper thruway route

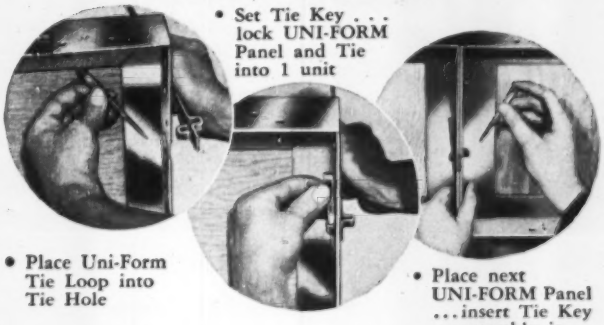
The New York State Thruway Authority, through its chairman, Bertram D. Tallamy, of Buffalo, has announced that it has purchased 3.7 mi of the Lehigh Valley Railroad's right-of-way in that city for a portion of the Niagara Thruway.

The originally planned route would have involved extensive property damage and excessive costs, and since the

(*Continued on page 58*)

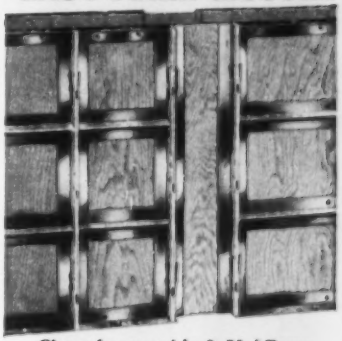
UNI-FORM Panels SAVE TIME... CUT LABOR AND MATERIAL COST

SIMPLE ASSEMBLY



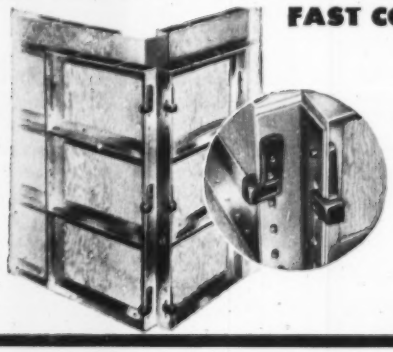
- Set Tie Key . . . lock UNI-FORM Panel and Tie into 1 unit
- Place Uni-Form Tie Loop into Tie Hole
- Place next UNI-FORM Panel . . . insert Tie Key . . . assembly is complete!

EASY FORM CLOSURE

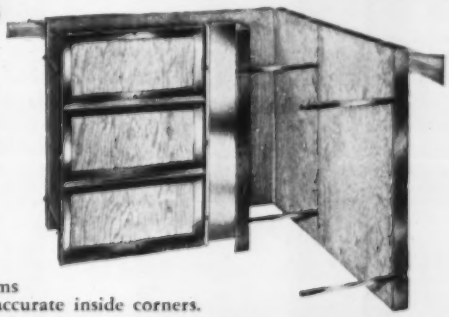


Close forms with 2 Uni-Form Angles and a piece of plywood . . . Start stripping here

FAST CORNER FORMING

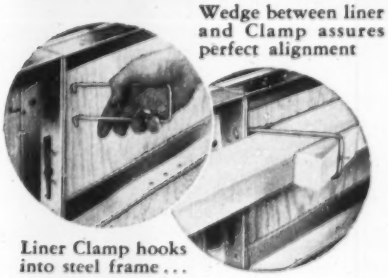


An Outside Corner Angle and Panel Loc Clamps form tight, accurate vertical corner . . . no additional tying.



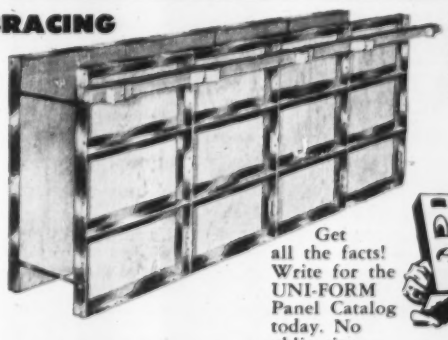
Rigid Steel Corner forms provide quick...easy...accurate inside corners.

ONE SIDE ALIGNMENT AND BRACING

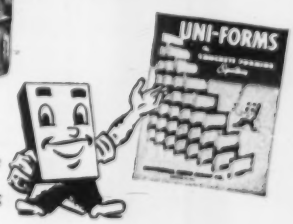


Wedge between liner and Clamp assures perfect alignment

Liner Clamp hooks into steel frame . . .



Alignment and bracing on 1 SIDE ONLY
Saves Time . . .
Saves Lumber . . .
Saves Labor . . .



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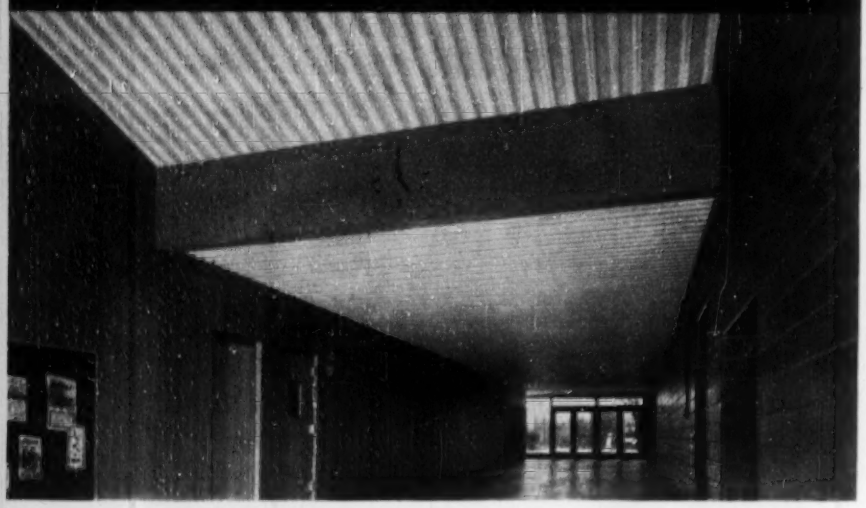
How to acquire high acoustical value at low cost with Q-DECK



Without further treatment, the exposed fluted undersurface of Robertson's strong, long-span roof deck has a recognizable noise reduction effect. However, consistent demand for higher noise reduction in institutional, industrial and commercial applications has led Robertson engineers to develop a highly effective, low-cost acoustical treatment. Acoustical material (such as glass fiber) is placed in the cells of the Q-Deck and held in place by means of an adhesive. The ceiling may be repeatedly spray painted without impairing its value. The noise reduction coefficients shown in the table below were obtained through tests conducted by Dr. Paul H. Geiger at the University of Michigan, using accepted laboratory equipment and procedure.

	NOISE REDUCTION COEFFICIENT
Type 3 or UK Deck with 1" of sound absorbent material.....	.60
Type 12 or FK Deck with 2" of sound absorbent material.....	.72
Type 12 or FK Deck with 4" of sound absorbent material.....	.90

For areas where the more costly suspended ceiling is desired, any standard method of application can be used. For details concerning this or the new low-cost Robertson method of roof deck engineering data and structural details, use the coupon below.

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Please send the following free file material from Robertson's Technical Library: ☐ Roof Deck Catalog ☐ Acoustical Data Book

NAME

FIRM

ADDRESS

railroad right-of-way runs close to the original route and offers a cheaper alignment, the authority has purchased the land for $6,950,000.

As a result of the action, 600 families and several industries in the area will be spared the ordeal of relocating.

The Lehigh route also permits easy adherence to Thruway standards of curve and grade as well as the efficient interchange of traffic between the Thruway and downtown Buffalo.

Property acquisition is subject to:

1. Approval of the Interstate Commerce Commission and the Public Service Commission.

2. Conclusion of arrangements to relocate a New York Central Railroad spur that crosses the present Lehigh tracks at grade.

Merchants urge modernization: would spend millions in area

Businessmen in Lakewood, largest suburb in the Greater Cleveland area, Ohio., have launched a $5-million private enterprise area improvement plan.

Sponsors of the project, the Detroit-Warren Property Owners' Council, assert that it is the first "specific proposal in the U.S. for the complete modernization of an entire older business section."

Plans call for demolition of 66 homes in the Detroit Ave.—Warren Road neighborhood. Land would be used to park some 2,000 automobiles.

Land acquisition and site improvements, as well as construction of new roadways to the area, would cost an estimated $1.2 million. Two-thirds of this, or $800,000, would be paid through assessments by benefiting property owners.

Under the proposal, the city of Lakewood, with $250,000 already set aside for land improvement, would shoulder the rest of the expense.

The city would retain title to the improved land.

Merchants say that if the plan goes through they are willing to spend a total of nearly $4 million in improving their property through modernization and additions.

The area is near the Cleveland borderline; the city is feeling the loss of business to suburban shopping centers.

Street use charge is valid—utility company will pay

A formal memorandum submitted recently to the Minneapolis city council by the city's legal department held that an odinance proposed to charge Northern States Power Co. for use

of city streets for its power lines would be enforceable and valid.

Under the ordinance a charge of $500 per route mile has been suggested, and on that basis, the company's total bill would approximate $500,000 annually.

The city at present charges the Minneapolis Gas Co. 1.6% of its gross sales for use of the streets. For 1954 it is estimated the city will receive about $400,000 under this charge.

Municipal briefs . . .

• **Off the water wagon**—Olathe, Kan., with a 45-day supply of water in its city reservoir has stopped hauling water by rail from Kansas City. Recent rains have brightened the Olathe situation, and promise of better days to come is seen in the recent award of contracts for construction of a new dam two miles west of the city.

• **Plenty of parking**—Mesa, Ariz., finds that it has parking space to spare thanks to Mormon pioneers who believed in making streets wide enough "to turn a team and wagon." Parking angles on Mesa's 120-ft arteries are being changed from 45 to 39 deg.—at a loss of one car space out of every five—to provide easier access to autos, better backing vision and less interference with through lanes.

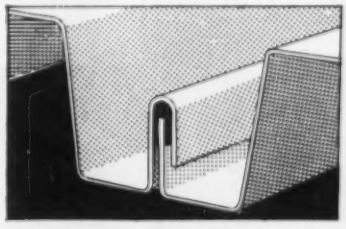
• **Capital program**—President Eisenhower has signed a bill authorizing a 10-year, $305-million public works program for the nation's capital. The program would be financed by a $14.3-million-a-year increase in D. C. local taxes and an annual federal payment of $20 million toward city expenses. Present federal payments total $11 million annually.

• **More power per generator**—The Tacoma, Wash., Public Utilities Board has received plans for a diversion dam on the south fork of the Snokomish River that will add 200 million kwh to City Light's capacity without the installation of another generator. The development calls for a diversion dam with a 4-mile tunnel to Cushman Reservoir No. 1.

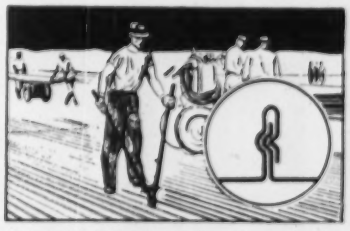
• **Arterial routes for Syracuse**—A 10-year, $50-million, program for construction of arterial routes within the city has been outlined by the Arterial Route Committee of the city planning commission of Syracuse, N. Y. The city's share—$10.1 million—is based upon its paying half the cost of land acquisition for five major projects.

Quickly erected Q-Deck helps lower roof fire hazard

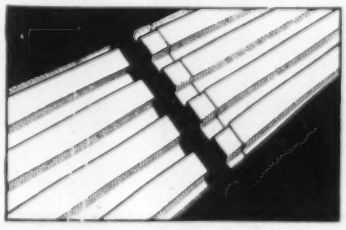
The many unique features of Robertson Q-Deck make it of special interest to the architect and engineer who is concerned about the fire hazard aspect of his flat roof design. Robertson Q-Deck is designed with tight side and end laps to eliminate the need for an inflammable vapor seal. Its two-foot width and long span characteristics mean fewer joints and its surface is either zinc coated or basic Galbestos.



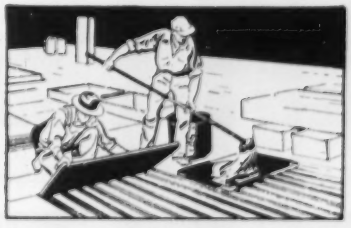
Robertson Q-Deck side laps are designed to form a standing seam. A seal in the form of a continuous caulking material assures a vapor-tight joint.



A special Robertson clamping tool mechanically fastens the side laps together, forming a steel fire barrier that remains intact as long as the structural supports are in place.



Ends of Robertson Q-Deck are sized and countersunk to produce a tight, smooth, two-inch lap joint. This lap, along with the tight side laps, provides a vapor-sealed roof construction.



Excessive amounts of asphalt are eliminated on Robertson Q-Deck because the adhesive is applied to the *insulation . . . not to the steel deck*. This also results in a better bond between the steel and the insulation.

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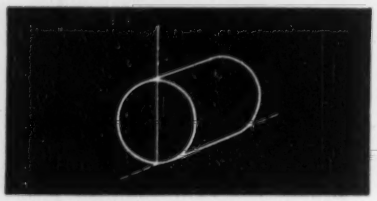

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BOOKS

Flood-control issues

THE FLOOD-CONTROL CONTROVERSY—By Luna B. Leopold and Thomas Maddock, Jr., under sponsorship of the Conservation Foundation. The Ronald Press Co., 15 East 26th St., New York, N. Y. $5.00.

All those who are interested in seeing a sound federal flood-control policy developed will find much of interest in this book. The authors' purpose is to give the public a better understanding of the techniques that are involved in the controlling of floods and a greater appreciation of the issues that have arisen since the federal government began to share in the cost of this type of work.

The controversy discussed is that between advocates of large dams on the main streams and proponents of headwater storage and runoff control, chiefly the disagreement between the Corps of Engineers and the Soil Conservation Service of the Department of Agriculture. Nothing is said about the jurisdictional dispute between the Corps of Engineers and the Bureau of Reclamation.

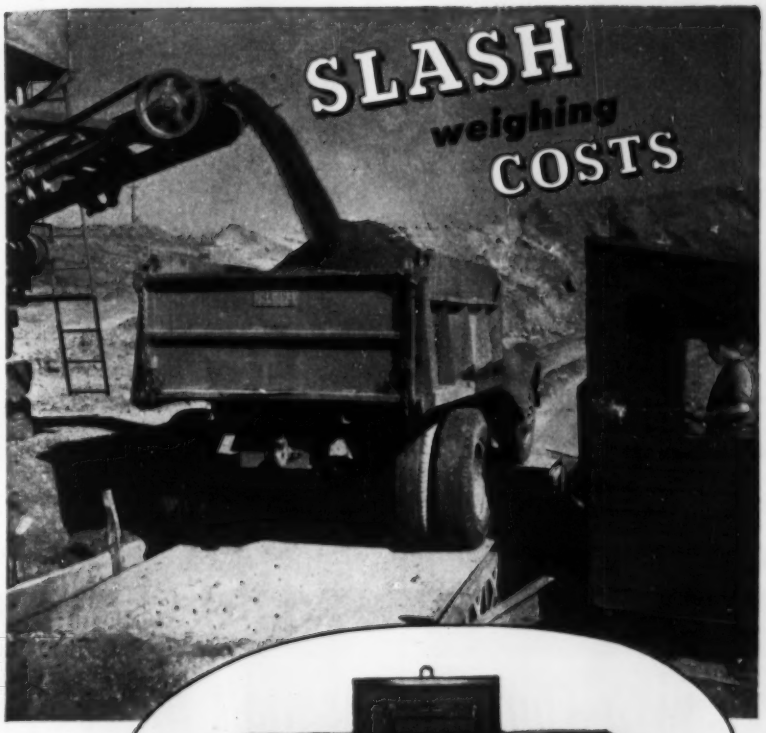
On the basic issue, the authors state: "Hydrologic principles alone demonstrate conclusively that for control of floods downstream on the main stem of moderate or large-sized river basins, a series of upstream reservoirs of small size will not provide the protection ordinarily considered adequate. A system of upstream reservoirs cannot replace protective works downstream, nor is the reverse true."

Improved land management, the authors conclude, including crop rotations and other practices that tend to increase the tilth of the soil, is more effective in reducing storm runoff than the more readily observed practices such as terracing, contour cultivation and strip cropping.

But the authors point out that these practices are more effective in preventing erosion and the consequent damage to land and channels than they are in changing the volume of runoff. And they note that while such practices are of value in reducing the damage that results from small and moderate storms, they are unimportant in the case of large storms.

Concerning this upstream work, the authors note that the long-term effect of reducing flood runoff probably will be to reduce channel capacity. "If channel capacity decreases, then the flood stage, not the flood discharge, for

(Continued on page 62)



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- Chrome-Plated weighbeam
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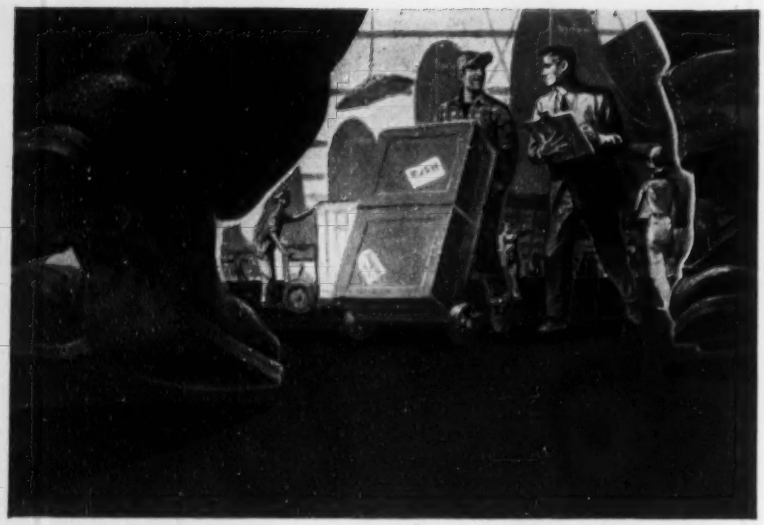

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for a given volume of water would be higher. It might turn out, therefore, that a drainage basin under management for a given number of years might provide runoff that would inundate its flood plain about as frequently as it was inundated under premanagement conditions."

Flood control as now practiced, the authors say, tends to become self-perpetuating, even self-expanding, because the sense of security it gives results in new encroachments on areas subject to overflow in major floods. They criticize the federal government for failure to insist on more complete zoning of flood plains and for its progressive retreat in regard to the matter of the extent of local participation in flood costs.

Finally, the authors do not favor putting all flood-control work under one agency. There still would be differences of opinion, they assert which probably never would be thoroughly explored if all flood control were under a single agency. They point out that the present system has the advantage of bringing these differences to light.

Concrete design

THEORY AND PRACTICE OF REINFORCED CONCRETE—Third Edition. By Clarence W. Dunham. 499 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. $7.

The latest edition of this textbook is intended mainly for undergraduate students. Indeterminate structures and other subjects principally for graduate students and engineers have been omitted and are to be included instead in a subsequent volume. However, to the first volume has been added an introduction to precast concrete, prestressed concrete and ultimate-load design. A chapter on forms also is to be found in this edition.

The new chapter on precast concrete discusses briefly the economics of precasting and its peculiarities that designers should take into account. Applications of both bridges and buildings are described.

Basic principles of prestressing are summarized in another new chapter. Design procedure is outlined and some of the more commonly used techniques are illustrated.

Ultimate-load design is demonstrated at several appropriate points in the book, for simple bending, for beams with compressive reinforcement, for combining bending and compression. The author prefers, be-

(Continued on page 64)

Photo by Offie Lites—Pine Bluff

Diesel engine shed, St. Louis Southwestern R.R. Co., Pine Bluff, Ark. Roof and sides of "Century" Asbestos Corrugated. Erection Contractor: Mound City Erection Co., St. Louis, Mo.

Cotton Belt Railway gets long-lived, low-cost shed of

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backfill problem

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IN JEFFERSONVILLE, INDIANA the E. H. Hughes Construction Co. had dug a 3′ wide trench for a lateral sewerline to a depth of 12′—in some places 15′—to tie in to an existing sewer main. This spoilbank along the edge of a built up residential street (hidden by spoilbank in photo) presented a real backfilling problem. Because the street had to be kept open to traffic and dust raising held to the minimum, the huge spoilbank could not be filled from the street side.

Hughes solved the backfilling problem—and at the same time compacted the filled trench—with a one-man-operated machine, the Cleveland Model 80-W. Needing minimum working space, easily able to pass under tree branches and clear all obstructions, the compact 80-W worked off the street, travelling parallel to the trench on the opposite side from the spoilbank. The street was kept open and the dust problem minimized.

The one-man 80-W did the complete filling and compacting job simultaneously as it travelled, cleaned up and left the job ready for immediate repaving. Its low ground pressure and perfect balance on wide full crawlers practically eliminated damage to the lawns, sidewalks and driveways it crossed.

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cause of its simplicity, the method proposed by C. S. Whitney, which employs a stress diagram of rectangular shape for the concrete. The treatment is rather brief; so it is quite possible that undergraduates may not be able to grasp the principles without further explanation.

The new chapter on forms contains many useful recommendations for their design and construction. It would be even more useful if it had included a discussion of form shores and the necessity of re-shoring in concrete buildings.

Reinforced concrete design

STRUCTURAL DESIGN IN REINFORCED CONCRETE—By Clifford D. Williams and Charles E. Cutts. 308 pp. The Ronald Press Co., 15 East 26th St., New York 10, N. Y. $6.

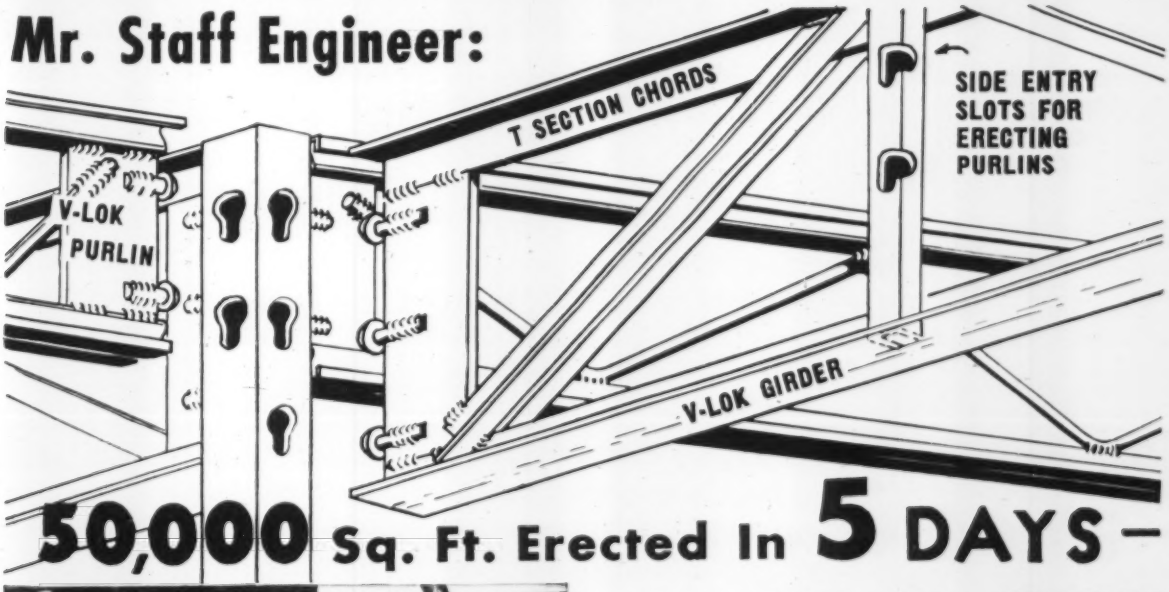
THEORY AND PRACTICE OF STRUCTURAL DESIGN APPLIED TO REINFORCED CONCRETE—By B. Eriksen. 401 pp. Concrete Publications, Ltd., London. Obtainable from the British Book Center, 122 East 55th St., New York 22, N. Y. $5.50.

While these two books have similar titles, their contents differ considerably. Eriksen's book deals almost entirely with structural theory, with only about two chapters out of sixteen devoted to the design of reinforced concrete members. In contrast, the other contains only one chapter on structural theory—determination of moments and shears for continuous structures—and devotes the remaining eight chapters to the design of concrete members.

Eriksen's book is divided into two parts. The first presents fundamental principles of statics and the theory of elasticity, stress analysis of simple beams and cantilevers, and design of reinforced concrete members. The second part offers several methods for analyzing statically indeterminate structures, including moment distribution by the fixed-point method; but the Hardy Cross method (converging approximations) is not presented, however, this is the only method that is considered in the book by Williams and Cutts.

That text, it is worth noting, follows in many ways the trends that can be discerned readily in most books recently published for ungraduate use. It emphasizes fundamental principles of reinforced concrete design, while at the same time indicating how advantage can be taken of formulas. It includes a chapter on prestressed concrete and also explains ultimate-load design.

Mr. Staff Engineer:



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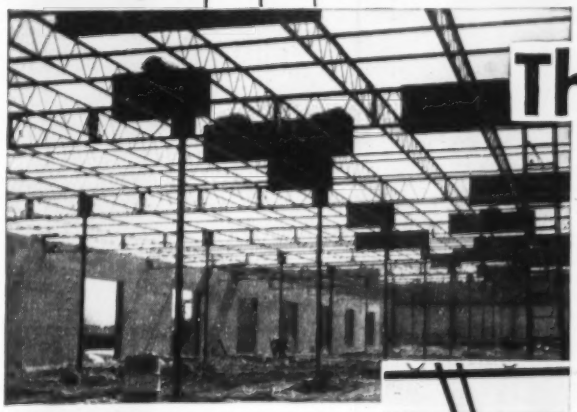

A STEEL FRAME COMPLETE IN FIVE DAYS.

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LEFT: Wall anchor at expansion joint.

RIGHT shows angle bridging, extended at wall line as outlooker carrying deck.

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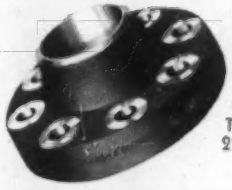

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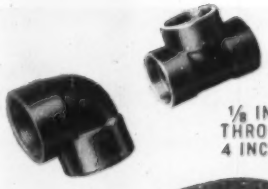

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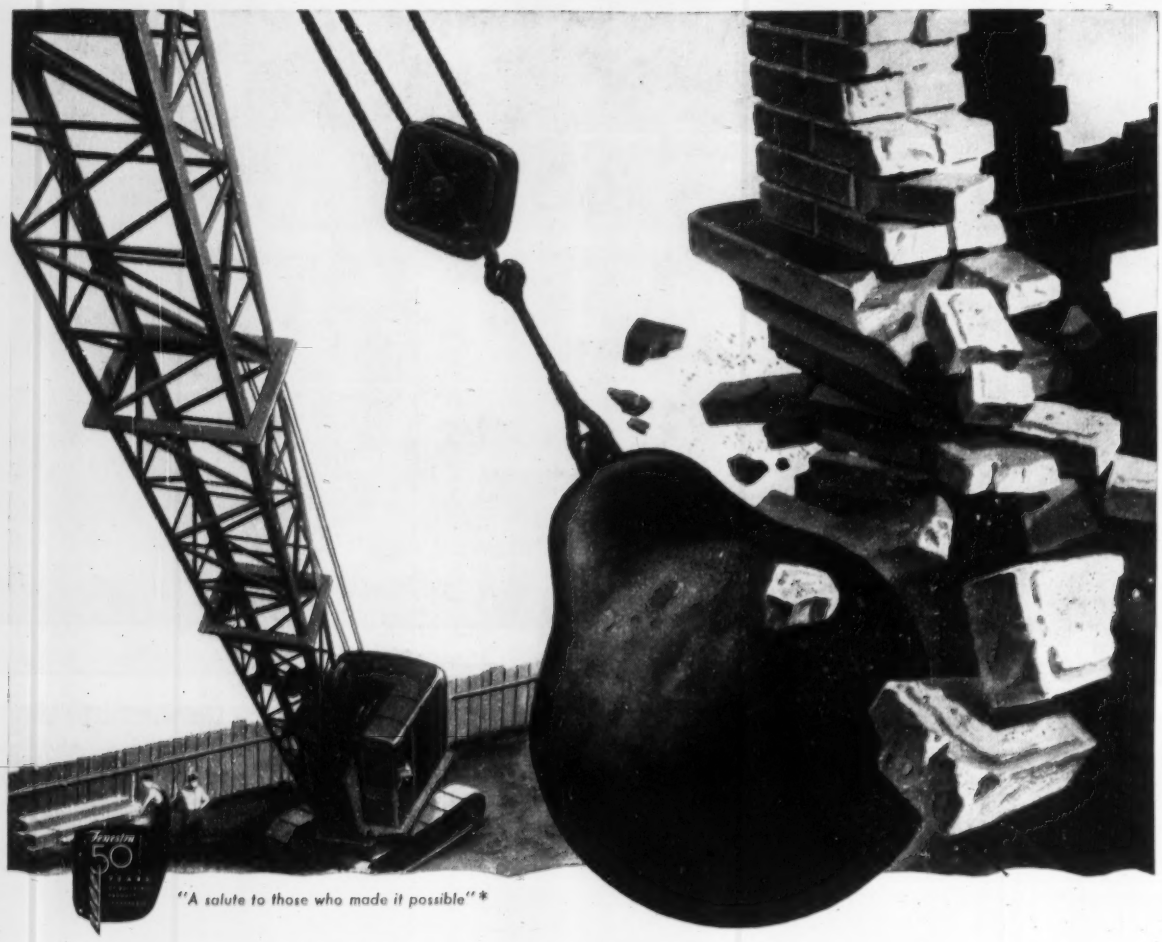

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Will it be old *electrically* before it's completed?

Or will it be productive beyond its normal span because of its electrical flexibility? It *can be* — with Fenestra-Nepco Electrifloor — the structural floor system in which the sheet steel cells are used as electrical raceways.

With this advanced new floor system, new outlets can be installed *any time* . . . in *any* or *every* square foot of floor space. Your floor will welcome every future electrical demand.

And this new floor system saves building time, labor, materials and money!

On one job, 1,000 tons of structural steel were saved because of Electrifloor's combination of great strength with light weight. Foundation costs were also cut.

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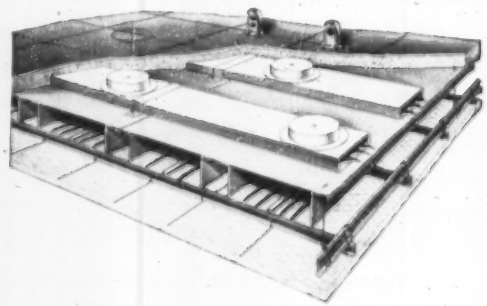

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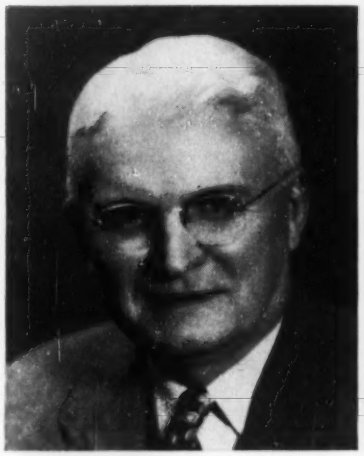
MEN AND JOBS



Prof. R. B. Wiley to leave Purdue engineering school

Prof. Ralph B. Wiley, head of Purdue University's school of civil engineering and engineering mechanics since 1937 and director of its Joint Highway Research Project since 1939, will retire June 30. He will be succeeded by Kenneth B. Woods, professor of highway engineering and associate director of the research program.

Harold L. Michael will move to the assistant directorship post on the research project. An instructor in highway engineering, he also has been serving as research assistant in the project's organization.

Professor Wiley, a 1906 graduate of the University of Michigan, started his career with the city of Columbus, Ohio, as design engineer on water purification and sewage disposal plants. He joined Purdue's staff in 1908 as an instructor in hydraulics and within two years advanced to full professorship in sanitary engineering.

To maintain close contact with the practical phases of engineering, Professor Wiley spent most of his summers working as a consulting engineer for the city of Detroit on development of its sanitary system. He also served as a consultant on sanitary drainage and water supply problems for almost a dozen other municipalities in Michigan, Illinois and Indiana.

A former vice-president of the ASCE, professor Wiley is a member of the Indiana Flood Control and Water Resources Commission and for several years has been chairman of the Indiana Stream Pollution Control Board.

(Continued on page 70)

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shovel-crane

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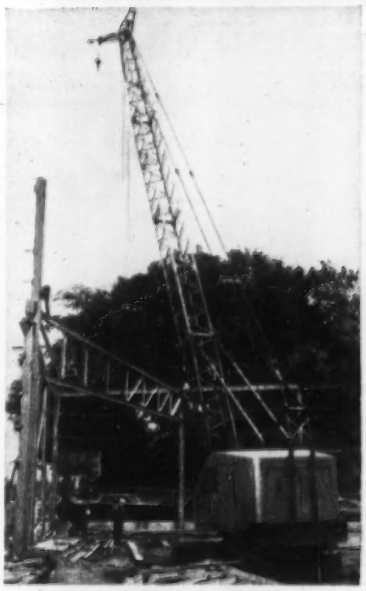

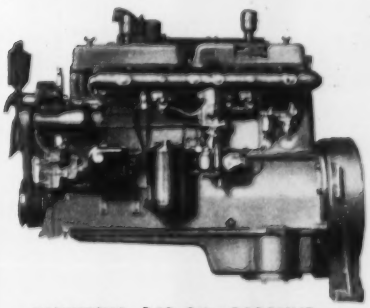

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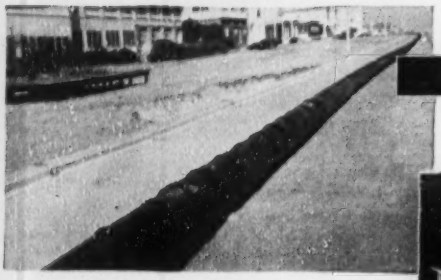
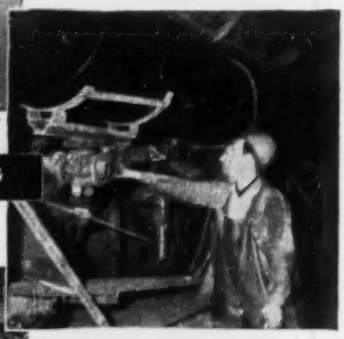


DREDGING



VENTILATING

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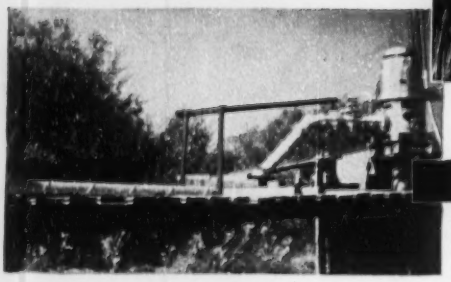

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MEN AND JOBS

The new head of the civil engineering and engineering mechanics school—Professor Woods—joined the Purdue staff in 1939 after six years service with the Ohio Department of Highways. In addition to his university work, he has contributed to educational research programs on air photo interpretation and permafrost studies for Army and Air Force engineers.

New Orleans' dock board reorganizes top engineers

The appointment of William T. Hogg as chief engineer for the board of commissioners of the port of New Orleans marks a complete reorganization of the engineering department.

Three other advancements also have been announced by the Dock Board, which is currently rounding out a $32-million construction program. C. Leonard Jones has been promoted to deputy chief engineer. Albert Boelte is the new assistant engineer in charge of plans, specifications and development. Edgar Dunn will be in charge of electrical and mechanical equipment at the grain elevator in addition to an assignment in the engineering department.

Col. Marcel Garsaud, who has been acting as chief engineer for the board since January, will remain with the engineering department as a consultant.

Hogg joined the Dock Board as a structural designer in 1918. Except for a four-year period when he was designing engineer for J. P. Ewin, Inc., Mobile, Ala., he has been connected with the board's engineering department ever since.

Career briefs . . .

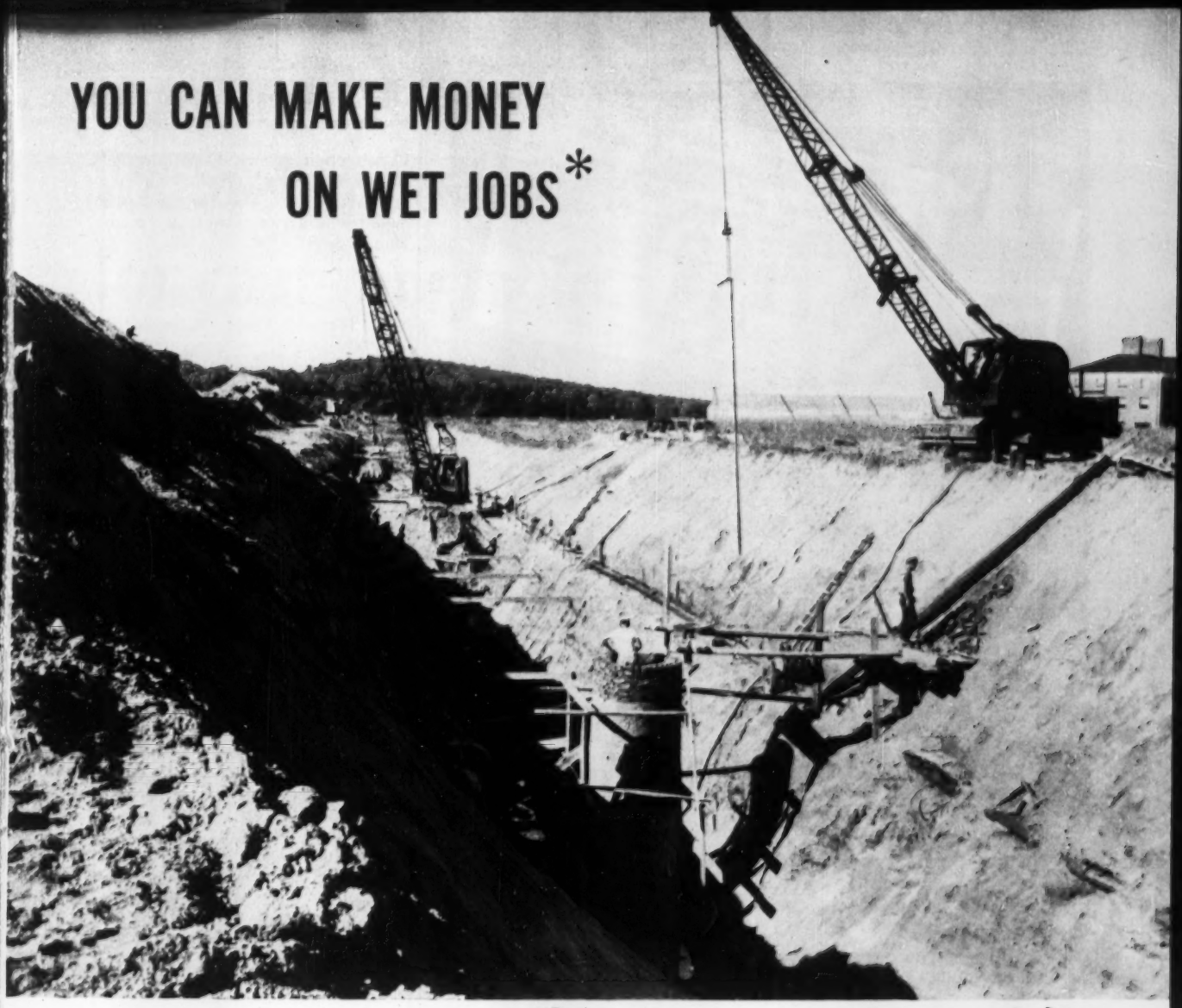
• **Reclamation retirement**—Peter J. Bier, specialist in steel pipe and penstock design, has retired from the Bureau of Reclamation at Denver after more than 30 years service. Recently he received the Department of Interior's Distinguished Service Award.

• **Association officers**—Frank H. Miller, chief engineer of the Hampton Roads Sanitary District Commission, has been elected president of the Virginia Industrial Wastes and Sewage Works Association. L. R. Albert is the new vice-president and J. L. Hamrick, Jr., secretary-treasurer.

• **Special Army assignment**—C. B. Lester, chief engineer of Mid-Valley Pipeline Co., Longview, Tex., will leave this month for Paris on a special 6-month assignment with the Joint

(*Continued on page 72*)

YOU CAN MAKE MONEY ON WET JOBS*



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A MORETRENCH WELLPOINT SYSTEM kept plenty of water (and the contractor) out of trouble on this deep sewer excavation in the mid-west. With water under control, the job progressed efficiently and economically—in the dry.

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THROUGH THESE PORTALS pass the world's most powerful bombers . . . the new jet-powered B-52's . . . built by Boeing for the U.S. Air Force and freighted with importance for the entire free world.

And what an entrance it takes to fit a hangar for these jet giants! Here are 13 telescoping canopy sections, each 60 feet long by 65 feet high, each operated by its own 15 H.P. motor. Here is a total wall-to-wall entrance length of 780 feet, an over-all opening that measures 50,700 square feet — fully opened or closed in less than 2 minutes and free of all vibration in operation.

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This is not the first installation International has made for Boeing. It was International Steel that helped to engineer — and completely fabricated — the world's largest door for Boeing's newest Wichita, Kansas B-47 flight hangar.

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MEN AND JOBS

Construction Agency, Department of the Army. As a consultant to the agency, he will give technical and engineering advice on military petroleum projects.

• **Road chief resigns**—After serving two years as chairman of the Louisiana State Highway Board, Sherwood R. Loe has resigned to concentrate on private business. The board will name a new chairman at its June meeting.

• **Invention wins award**—Paul D. Miller, district engineer at Statesville, N. C., has won the 1953 D. B. McCrary Award for outstanding services to the North Carolina Highway Commission. He was chosen for his invention of a special scoop to cut trenches for widening highways. The machine was used by the commission in modernizing the state's primary highways.

• **Business arbitrators**—The American Arbitration Association has appointed two new members to its National Panel of Arbitrators: F. N. Ropp, of the Los Angeles structural engineering firm of Ropp & Ropp, and Finley B. Laverty, chief hydraulic engineer for the Los Angeles County Flood Control District. As panel members, their services will be available to parties submitting commercial disputes to arbitration.

• **Park Service post**—Robert P. White, assistant superintendent of the Great Smoky Mountains National Park, has been promoted to engineer of a new eastern design office of the National Park Service, located in Philadelphia. During his 24 years as engineer, White has directed most of the construction work in the Great Smoky Park.

• **Institute names officers**—The Steel Joist Institute has elected the following officers: President—Walter H. Stewart, vice-president of Virginia Steel Co., Richmond; vice-president—James D. Maitland, president of the Colorado Builders Supply Co., Denver; secretary-treasurer—C. H. Luedeman, Steel Joist Institute, Washington, D. C. Prof. J. W. Hubler, chairman of the civil engineering department, Washington University, St. Louis, has been re-appointed consulting engineer for the Institute.

• **State service ends**—Michael C. Hinderlider, Colorado state engineer since 1923, will retire in July. A graduate of Purdue University, he went to Colorado in 1897 to do public land surveys for the Geological Survey.

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From front to rear axle, new Ford *Triple Economy* saves you money all the way

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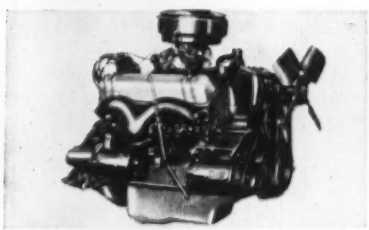
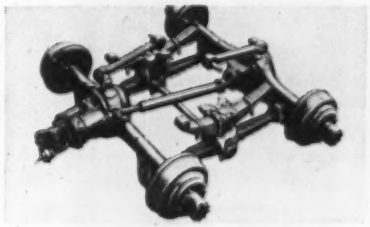
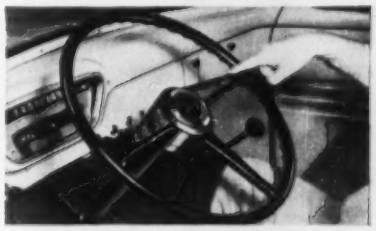
Brand new Ford factory-built T-800 Tandem-Axle BIG JOB is rated for 40,000 lbs. GVW, 60,000 lbs. GCW—gives you up to 3800 lbs. more payload than other make 6-wheelers in this class. Powered by the new 170-h.p. *Cargo King* V-8.



New Low-Friction 170-h.p. *Cargo King* V-8 gives you up to 41% more power per cubic inch than other truck engines in its class.



Latest design tandem axle bogie features rubber-bushed suspension and power divider with 3rd differential lockout.



New Master-Guide Power Steering is standard on T-800. Operative at all times, it cuts steering effort as much as 75%.

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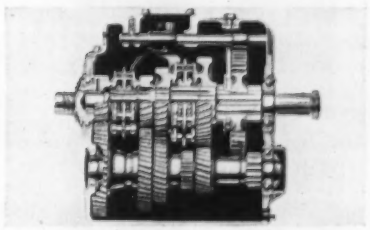
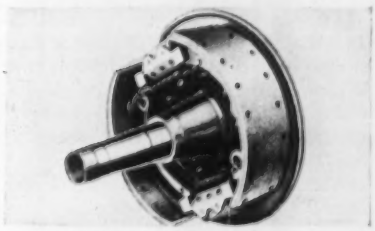
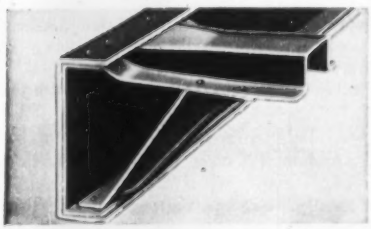


Heavy duty, 5-speed Synchro-Silent transmission is available in direct or overdrive. Auxiliary transmissions also available.



New T-Series has vacuum-power operated hydraulic brakes on all six wheels. Full air brakes available on the T-800.



Deep, double channel frame has parallel side rails 9¼ in. deep. Reinforced from rear of front spring to end of frame.

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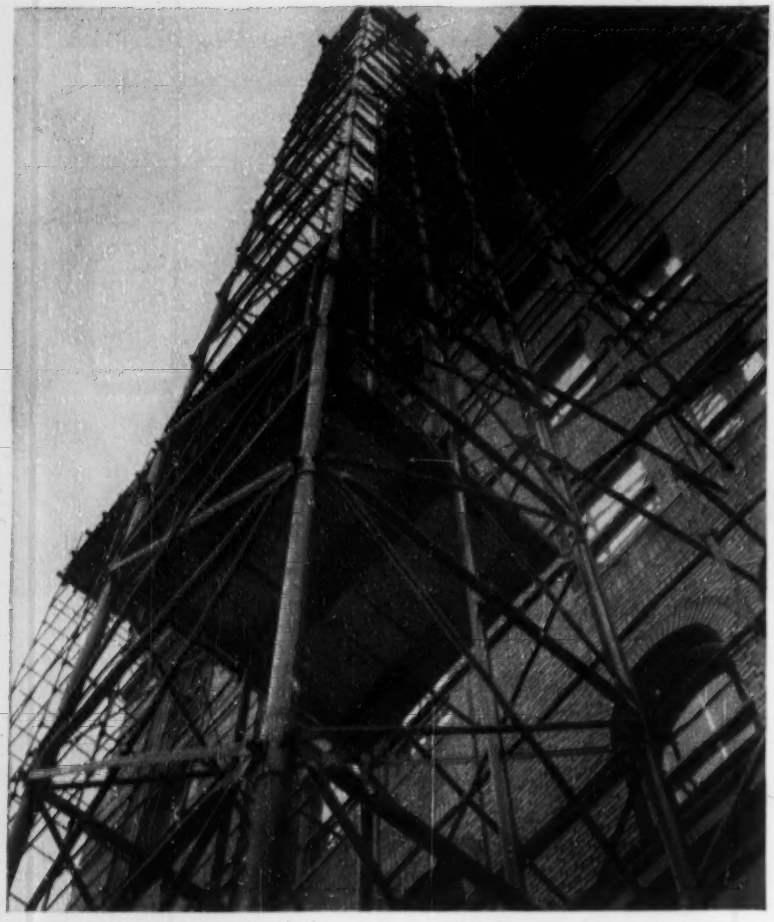

GOING UP quickly and easily is no problem for this safe, efficient "Gold Medal" ® Hoist Tower on San Pedro (Calif.) City Hall job. TubeLox Scaffolding was used in conjunction with tower. C. J. Fogstad was the contractor.

Steel Hoist Towers Speed Concrete Pouring, Masonry

TO RAISE CONCRETE for a one story and penthouse addition on Western Pacific Railroad's home office building in San Francisco, general contractor N. H. Sjoberg & Son took no chances with safety or efficiency and specified a "Gold Medal" Steel Hoist Tower.

Built up to a 143-ft. height, this tubular steel tower offers advantages of great strength, quick assembly of prefabricated parts and completely safe service. Assembled from steel horizontal girts, diagonal braces, bolted tower legs and base sills, the "Gold Medal" Tower can be built up to extreme heights and meets load requirements up to 5000 lbs. They can be equipped with cages, or with concrete bucket and hopper.

For light duty service, contractors now specify the new "Trouble Saver" Sectional Steel Hoist Tower. This prefabricated, easily-erected tower has a 130-ft. maximum height, a 4000 lb. load capacity and full three-wheelbarrow width combined with unusual safety and labor-saving features. From heavy to light duty, PS Steel Hoist Towers are best for the job. Remember, when it comes to scaffolding, come to PS.

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THE PATENT SCAFFOLDING CO., INC.

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West Coast: 6931 Stanford Ave., Los Angeles 1, Calif.
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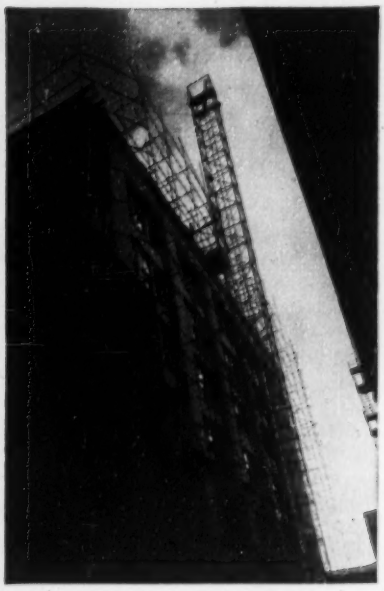
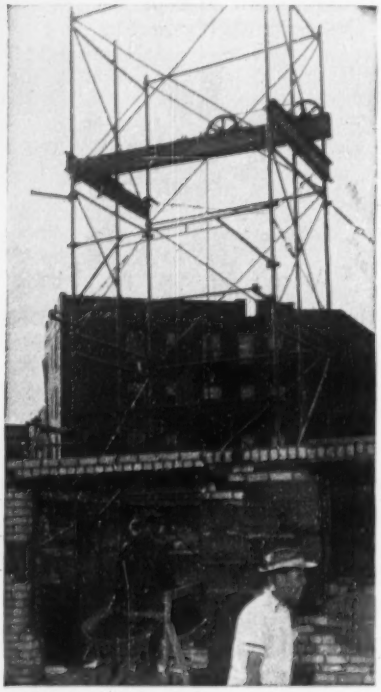


THIS HEAVY DUTY "Gold Medal" Hoist Tower on Western Pacific's office building is used for lifting concrete, rises 143-ft. above street. Easy to assemble, it provides tremendous strength to meet load requirements.



NEW LIGHT DUTY "Trouble Saver" Sectional Steel Hoist Tower speeds mortar to masons on 6-story apartment house. Kew Gardens, N. Y. Paul A. Cardone was the brick mason contractor.

To help you solve any scaffolding problem, PS offers a complete nationwide engineering service—available locally. See the Yellow Pages in your 'phone book for the nearest Patent Scaffolding office or representative handling "Gold Medal" Scaffolds.

OBITUARIES

Matthew B. Black, 71, a civil engineer for the bridge division of the Pennsylvania highway department, died at Annville, Pa., May 26. For 15 years, Mr. Black served as an engineer for the New York-Pennsylvania Inter-State Bridge Commission. He had been employed by the Highway Department since 1918.

John B. Stouder, 81, retired civil engineer for the New York State Public Service Commission, died May 25 in Albany. He helped lay out the tracks for the Union Station in Albany. A graduate of Drake University and Massachusetts Institute of Technology, he had been a civil engineer for the New York Central Railroad in Albany. In 1911 he joined the Public Service Commission and served 27 years before his retirement.

Roy Cordis Hardman, 73, civil engineer, died April 20 in Los Angeles, Calif. He had a long career in general practice—highways, construction, concrete design, water systems, and executive work, largely outside the United States. He held degrees of B.S. in C.E. and C.E. from the University of Iowa. His work covered fields from the Philippine Islands, the Panama Canal, Republic of Panama, Costa Rica, and El Salvador, where he was chief engineer in public works programs. His last work before retiring in 1941 was as P.W.A. representative for Puerto Rico and the Virgin Islands. He wrote articles for engineering publications.

Dwight A. Davis, 67, died at Jackson, Mich., April 21. He was a 1911 civil engineering graduate of the University of Michigan. At the time of his death he was employed on structural designs by Commonwealth Associates, Inc., of Jackson. Since 1923, he has also held positions with Commonwealth and Southern Corp., The Fargo Engineering Co., both of Jackson; Giffels and Vallet Inc. of Detroit and the Michigan State Highway Department.

Oliver I. Lewis, 51, chief engineer for the engineering and technical division, U. S. Army Signal Corps, died May 18 in Philadelphia, Pa. He was a 1925 graduate of the University of Pennsylvania. He began his service with the Signal Corps in 1935 and had many engineering assignments thereafter. In 1947 he was given the exceptional Civilian Service Award for his contribution to the research and development program of the Signal Corps during World War II.

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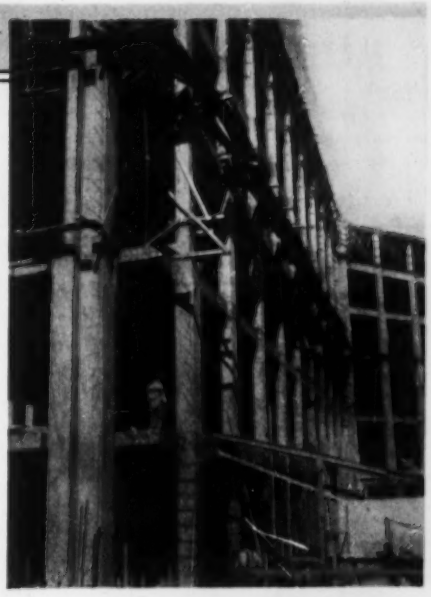
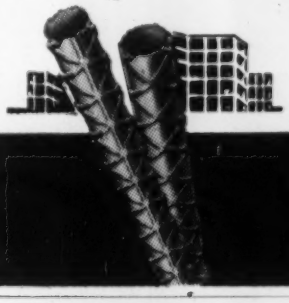


Alabama's new State Office Building where Connors Reinforcing Bars were used.



CONNORS STEEL DIVISION
H. K. PORTER COMPANY, INC.
OF PITTSBURGH
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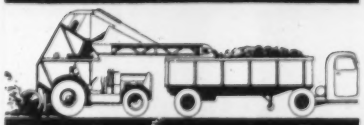
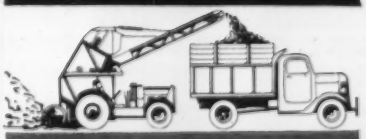


highest trucks



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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
July Materials, and Labor Prices will appear in July 8, 1954 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots Gravel, 1½ in.	Gravel, ¾ in.	Sand	CRUSHED STONE Per ton, carload lots 1½ in.	¾ in.	CRUSHED SLAG Per ton, carload lots, f.o.b. plant 1½ in.	¾ in.	CONCRETE BLOCK 8 x 8 x 16-in.: truckload del.: per block Sand grav.	Lt. wgt. agg.	CONCRETE Ready Mixed 1:2:4: over 50 c.y., del.
	Paper	Bulk	Mortar										
Atlanta	$3.87	$3.56	$3.40	$2.07‡	$2.07‡	$1.83	$2.20	$2.20	$1.99	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.60‡*a*	2.60‡*a*	2.00‡*a*	2.75‡*a*	2.80‡*a*	2.65‡*a*	2.60‡*a*	.17	.17*a*	11.45
Birmingham	3.47	2.60*e*	....	2.25*n*	2.25*n*	2.08*n*	2.64	2.64	1.35	1.45	.165	.165	11.00
Boston	4.16	3.84	3.96	2.50*a*	2.50*a*	2.50*a*	1.50*a*	1.60*a*	.....	.....	.215	.245*a*	12.00*h*
Chicago	3.48	3.17	3.20	3.25‡*b*	3.25‡*b*	3.65‡*b*	3.25‡*b*	3.25‡*b*	2.25‡	2.25‡	.23	.23*b*	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.19‡*c*	2.24‡*c*	2.24‡*c*	2.54‡*c*	2.54‡*c*	.....	.....	.205	.225*a*	10.95
Cleveland	N. A. in C. L.	3.19*e*	....	2.05*f*	1.85*f*	1.65	4.10*a*	4.10*a*	3.35‡	3.15‡	.....	.22	14.40*d*
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11*c*	.267*5*	9.40
Denver	4.04	3.74	4.04	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255*a*	10.50
Detroit	4.40	3.62	3.75	4.50‡*b*	4.50‡*b*	4.00‡*b*	3.75‡	3.75‡	4.25‡	4.25‡	.19	.20*a*	12.00*f*
Kansas City	3.52	3.22	3.30	1.85‡	1.85‡	1.50‡*a*	2.00‡*a*	2.00‡*a*	.....	.....	.21*a*	.24*c*	12.00*b*
Los Angeles	4.52*a*	4.00*a*	5.00	2.16*a*	2.36*a*	2.11*a*	2.11*a*	2.21*a*	.....	.....	.14/*m*	.248*m*	11.88*h*
Minneapolis	3.95*d*	3.64*d*	3.56	2.55‡*ag*	2.55‡*ag*	1.50‡*ag*	2.75‡*ag*	2.75‡*ag*	.....	.....	.19*i*	.....	12.25*l*5
Montreal	3.16*ac*	2.96*ac*	....	3.00*e*	3.00*e*	2.25	1.65*ij*	1.90*ij*	.....	.....	.20	.20*a*	10.55*ab*
New Orleans	3.35	3.02	3.33	2.32	2.32	1.82	....	....	1.05	1.25	.275	.....	12.90
New York	4.01	3.70	3.53	2.85*bk*	2.85*bk*	1.90*bk*	2.70*bl*	2.70*bl*	.....	.....	.....	.....	14.05*an*
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡*ep*	2.75‡*ep*	2.15‡*ep*	2.30‡	2.40‡	2.00	1.90	.22/.25	.....	12.50*ao*
Pittsburgh	3.47	3.19	3.47	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22*d*	.22	13.00
St. Louis	3.40/3.63*b*	3.09/3.35*b*	3.25/3.42	3.10*am*	2.90*am*	2.30/2.90*am*	1.70*j*	1.70*j*	1.50	1.50	.22	.28*ci*	11.40
San Francisco	3.67	3.27	....	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28*cl*	12.15*c*
Seattle	4.80*a*	3.55*a*	3.95*h*	3.50‡*bm*	3.50‡*bm*	3.50‡*bm*	4.00‡*bm*	4.00‡*bm*	.....	.....	.25*i*	.332*5i*	12.30*f*

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dia. *b* Less 2% for cash. *c* CL price dealers discount not incl. *d* Dealers sell only LCL. *e* Truckload lots, destination price. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1–3 mi zone. *p* Add 10¢ for ea. add'l 3-mi zone.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *l* F.o.b. plant San Rafael. *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cy. brackets. *d* 1–3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

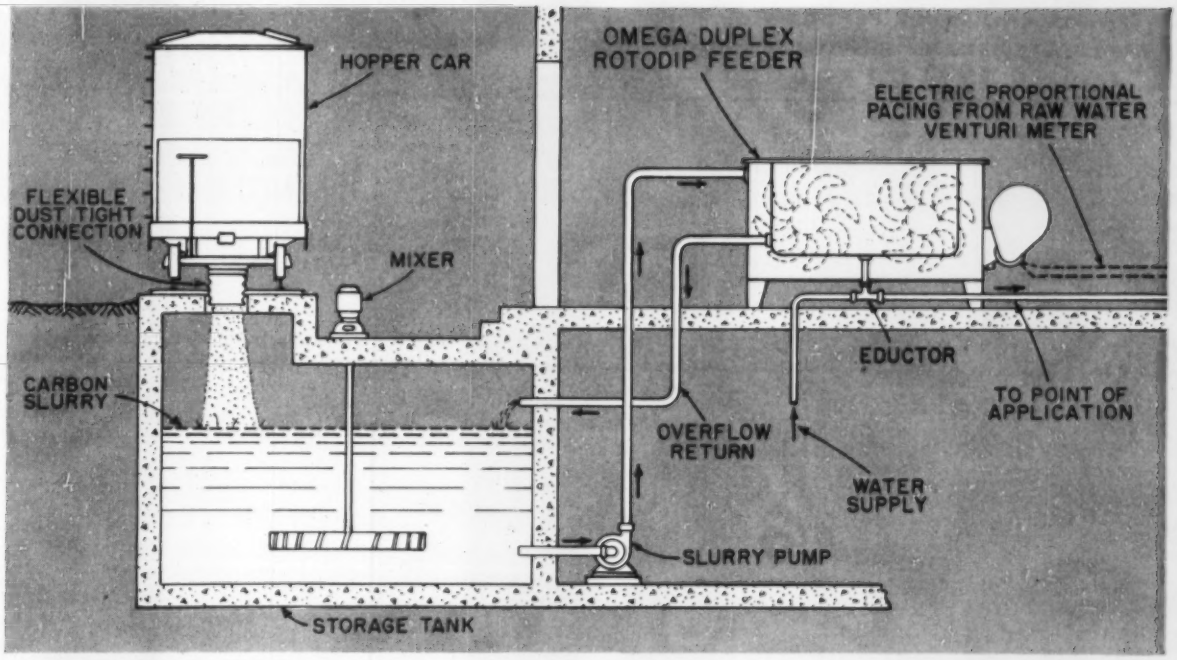
	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.75†	Buffington, Ind	$2.70†	Steelton, Minn	$2.80†	Muskegon, Mich	$2.85†	Toledo, O	$2.80†
Clinchfield, Ga	2.75†	Independence, Kan	2.65†	Leeds, Ala	2.60†	Saginaw, Mich	2.75†	Milwaukee, Wis	2.90†
Kingsport, Tenn	2.75†	Hannibal, Mo	2.70†	Duluth, Minn	2.80†	Wyandotte, Mich	2.75†	Green Bay, Wis	2.90†
West Des Moines, Iowa	2.80†	Northampton, Pa	2.75†	Hudson, N. Y	2.75†	Buffalo, N. Y	2.85†	Ironton, O	2.75†
Nazareth, Pa	2.75†	Universal, Pa	2.80†	Alpena, Mich	2.65†	Oswego, N. Y	3.00†	Montreal City	2.66
Bath, Pa	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich	2.75†	Cleveland, O	2.90†	W. Winfield, Pa	2.80†

† *Prices to hold for second quarter of* 1954.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-break) Per gal. Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095*w*	$0.185*w*	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	.....	21.00*i*	.....	.0651*i*	0.1751*i*	.09*iw*	.18*iw*	.09*i*	.095*i*	0.185*i*
Birmingham	.....	49.50*i*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00*a*	23.00*a*	22.00*av*	22.00*av*	.....	.....	.09*a*	.105*a*	.22*a*
Chicago	155.00‡	85.00‡	3.60/3.65‡*j*	19.85*b*	29.85*b*	18.85*bv*	28.85*bv*	.094*bw*	.1740*bw*	.074*b*	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	65.00*d*	5.03*g*	23.00*4*	.....	23.00*4*	.....	.1025*4w*	.....	.....	.11*4*	.18*4*
Dallas	*e*	40.00	*e*	24.05	43.09	.1016	.2103	27.09	47.87	.098	.1014	.2128
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	....	27.21	.....	27.21*v*	.....	.1188*w*	.....	.0792	.....	.211
Kansas City	*e*	*e*	*e*	15.00*cl*	.....	.06	.....	.065*xw*	.....	.055*c*	0.10	.....
Los Angeles	*e*	.....	*e*	16.00*dmx*	.....	16.00*dux*	.....	18.00*dx*	.....	17.00*dv*	.0825*j*	.1725*f*
Minneapolis	.....	.....	2.97*h*	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	*e*	*e*	27.00*n*	39.60*n*	.135*n*	.198*n*	16.50*nu*	20.90*nu*	.132*n*	.197*ns*	.239*ns*
New Orleans	.....	.....	.....	17.50*e*	....*o*	17.50*ev*	....*o*	.085*ew*	....*o*	.0825*s*	.085	.....
New York	.....	.....	2.75*f*	23.89*q*[CD]	44.32*q*[D]	22.89*st*[CD]	43.57*st*[D]	.1023*w*[CD]	.1889*w*	.....	.1023[CD]	.1918[D]
Philadelphia	178.00	110.00	4.06	22.00	.....	.....	.....	.095*u*	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00	40.00	.095	.10	.22
St. Louis	.....	.....	.....	18.55*f*	.....	.1713	.....	.0865/.089*w*	.....	0.155	.10	.....
San Francisco	.....	55.00*e*	.....	17.50*g*	33.00*gp*	17.50*gkv*	33.00*gkv*	20.00*g*	37.50*g*	18.75*v*	.085*y*	.....
Seattle	.....	.....	.....	17.50*h*	38.00*h*	17.25*hv*	.....	20.00*h*	.....	19.75*hv*	.085*h*	.095*hr*

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *c* 2⅛ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3" *h* 2" int., 8¢ treat. *i* 3 x 3⅝ x 8½. *j* 2½", 6lb. tr.
ASPHALTS: *a* Price at plant. Everett, Mass *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. * Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. *4* F.o.b. refinery, Cleveland. *5* F.o.b. Norco, La. *c* Bulk. *D* Prices based on transporting to Manhattan via truck.

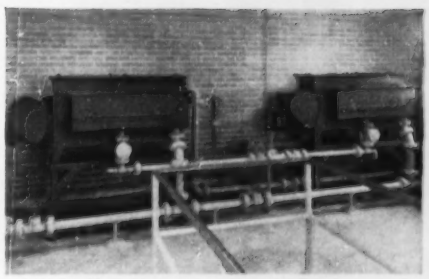


Houston shows how to cut carbon handling costs

Activated carbon for controlling the taste and odor of Houston's water supply is received in carload lots at the Houston Water Purification Plant. As shown in the diagram, the carbon is then fed in slurry form by Omega Rotodip Feeders, the super-accurate solution feeders which are specially designed for this type of service. Here are the advantages of this modern chemical feeding system:

1. **Reduced handling costs** — carbon is dumped directly into storage tanks and then handled in an enclosed system to point of application.
2. **Reduced construction costs**—system permits below-ground storage.
3. **Great flexibility** — wide feeding ranges and large dosages are easily obtained.
4. **Simpler housekeeping** — system totally eliminates carbon dust.
5. **Greater safety** — fire hazards virtually eliminated.

Carbon slurry feeding is another example of how "The Last Word in Feeders" save money in the feeding of chemicals. For further information on this and other advanced types of dry and liquid chemical feeders, write Omega Machine Company, 390 Harris Ave., Providence 1, Rhode Island.



Omega Duplex Rotodip Feeders for feeding and metering carbon slurry at Houston Water Purification Plant. This plant also employs Omega Gravimetric Feeders for alum, ferrifloc, quicklime, and soda ash.

Chemical Building which houses Omega Rotodip Feeders. Arrows point to railroad siding and storage tank covers. Plant engineering was by Freese, Nichols & Turner — of Houston, Texas . . . installation by E. W. Bacharach, Inc., Kansas City, Mo.

OMEGA *THE LAST WORD IN* FEEDERS

DIVISION OF B-I-F INDUSTRIES, INC.

BUILDERS IRON FOUNDRY • PROPORTIONEERS, INC. • BUILDERS-PROVIDENCE, INC.

BIF METERS FEEDERS CONTROLS

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$4.10	$4.10	$4.15	$8.90	...	$86.50	$104.00	Not	$5.275	$7.05	$5.125	....
Chicago Area	4.10	4.10	4.15	8.90	$4.925	86.50	104.00	avail-	5.275	7.05	5.125	....
Pittsburgh Area	4.10	4.10	4.15	8.90	4.925	86.50	104.00	able	5.275	7.05	5.125	$11.00
Buffalo Area	4.10	4.10	4.15	8.90	4.925	86.50	104.00	....	5.275	7.05	5.125	11.00
Cleveland	....	....	4.15	8.90	4.925	.....	.....	....	....	....	....	11.00
Youngstown Area	....	....	4.15	....	....	.....	.....	....	....	7.05	....	....
Geneva	4.10	4.10	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	4.925	.....	.....	....	....	7.05	....	....
Pueblo	4.30	4.70	4.75	....	....	.....	95.00	....	5.275	7.05	5.125	11.00

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	Rail steel	EXPANDED METAL LATH[k] Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.31	$7.11[s]	$7.11[s]	$38.00‡	$42.00‡	
Baltimore	6.98	6.91[j]		42.00	45.00	
Birmingham	6.35	6.15[t]	6.15[t]	50.00[v]	55.00[v]	
Boston	7.06[a]	7.22	7.22	38.50	42.50	
Chicago	6.46	5.75[gu]	5.75[gu]	43.00‡	50.00‡	
Cincinnati	6.93[ak]	6.91[rz]	....	39.00[mn]	43.00[mn]	
Cleveland	6.79	5.61[c]	....	36.50‡	40.50‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	7.95	7.30[c]	....	48.00[n]	59.00[mn]	
Detroit	6.91	7.04[dw]	....	50.50	54.50	
Kansas City	7.05[a]	7.27	....	43.50	47.50	
Los Angeles	7.35[fd]	6.85	....	51.00	57.00	
Minneapolis	6.92[d]	7.53[b]	7.53[b]	34.50	38.50	
Montreal	7.25–8.00[c]/9.20[4]	6.05[i]	6.05[i]	46.00[A]	51.00[A]	
New Orleans	....	6.15[akz]	....	66.00	60.00	
New York	7.20	7.01[y]	7.01[y]	38.50[mn]	44.00[mn]	
Philadelphia	6.42	6.67	....	38.00‡	42.00‡	
Pittsburgh	6.40	6.40[z]	....	37.60	39.60	
St. Louis	6.86[a]	6.30[c]	6.30[c]	55.00[t]	56.00[t]	
San Francisco	7.25	6.85[j]	....	40.50	43.50	
Seattle	4.85[e]	6.20[cj]	....	51.00[mr]	57.00[mr]	

Quantity extras, per cwt: under 100#, +$4; 100-399#, +$2; 400-999#, +$1; 1000-1999#, +20¢; 2000-9999#, base price; 10,000-19,999#, −40¢; 20,000-39,999#, −50¢

EXTRAS, per cwt—*Quantity: less than 700#, +50¢; 700-1499#, +25¢; 1500-7999#, +10¢ *Size: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢ *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job) *Spirals (unassembled into fab. unit): hot rolled, +$1.75; cold drawn wire, +$2.75; *Engineering: details and tracings from designs by others) less than 500 lbs., +$2.50; 501-2000 lbs., +50¢ but not over $4500; 20-40 tons, +60¢ but not over $2000; 5-20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70 *Design only: +60¢

*‡ Delivered *a 2000–9999# *b 10,000–15,999#, fob city *c 20 tons or over *d 10,000–19,999# *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4¢ per sq. yd. *r 2% off for cash *s add 2.5¢ switch *t add 5¢ switch, 15¢ del. *u add 6.25¢ switch *v add 20¢ del. *w add 20¢ del. *z add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made *C Canadian made † Number system replaces inch system of classifying bar sizes, effective this issue. New system is based on number of eighth inches in diameter of bar.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.[a]	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 8' Pr Cl. 150	12' Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$0.90[m]	$3.40[m]
Baltimore	121.50	1.45	2.42	.578	.999	4.095[e]	11.1725	178.20	274.80	.95	2.60
Birmingham	103.00	1.45	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25[m]	2.75[m]
Boston	122.00	1.47	2.20	.553[qrs]	1.0665[qrt]	4.41[qrt]	11.90[qrt]	187.80[r]	289.20[r]	1.62[mq]	3.95[mq]
Chicago	107.00	1.45	2.20	.70[m]	1.35[m]	5.62[m]	13.50[m]	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.47	2.29	.581[t]	1.120[t]	4.64[t]	12.20[t]	225.00	350.00	.80[m]	2.95[m]
Cleveland	108.00	1.47	2.29	.49[s]	.945[s]	3.96[s]	10.66[s]	188.00[m]	245.65[m]	.82[m]	3.10[m]
Dallas	112.00	1.47	2.54	.430	.709	4.09[c]	9.175	.....	.....	.49	1.60
Denver	118.00	1.58	2.54	.48[n]	.78[n]	3.48[n]	....	.....	.....	.74[m]	2.50[m]
Detroit	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00[m]	350.00[m]	.86	3.47
Kansas City	113.00	1.47	2.29	.53	.945	3.87	10.60	250.00	480.00	.80	3.25[g]
Los Angeles	126.35	1.53	2.29	.621	1.261	5.211	14.891	228.20[l]	348.90[l]	.95	2.75[f]
Minneapolis[w]	112.00	1.49	2.42	.72[mo]	1.32[mo]	5.32[mo]	....	.....	.....	1.38[A]	3.93[A]
Montreal	110.00	....	....	1.07[u]	1.73[u]	5.52[u]	8.93[u]	.....	.....	1.17[k]	3.11[j]
New Orleans	101.50	1.45	2.42	.53	.965	5.13	....	300.00[r]	500.00[r]	.65	2.29
New York	111.35	1.47	2.20	.66	1.28	5.08	13.42	.....	.....	1.15	3.00
Philadelphia	110.00	1.45	2.20	.65	1.25	4.95[e]	12.65[e]	300.00‡	350.00‡	1.60[A]	3.95[A]
Pittsburgh	110.00	1.47	2.20	.488[m]	.864[m]	3.26[m]	8.71[m]	152.00	244.00	1.05[h]	2.50[h]
St. Louis	112.00	1.45	2.29	.58	1.03	4.22	9.80	180.00‡	380.00‡	1.20[il]	2.85[il]
San Francisco	127.00	1.53	2.29	.61[d]	1.41[d]	5.78[d]	14.32[d]	235.00‡	392.00‡	1.05[n]	3.30[n]
Seattle	122.00	1.54	2.42	.51[b]	.91[b]	....	....	150.00[c]	.....	.85[k]	2.75[k]

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

	3½ to 6 in. Lap Weld† Black %	Galv. %	2½ & 3 in. Butt Weld† Black %	Galv. %	Mill
Atlanta		11.00[a]			
Baltimore		6.00			
Birmingham		9.75[t]			
Boston	27.75[a]	11.00[a]	36.75	20.50	
Chicago	26.50[t]	8.25[d]	36.75	20.50	
Cincinnati	22.75[a]		34.75	18.50	
Cleveland	27.75[a]	11.00[a]	36.75	20.50	
Dallas	26.75[ab]	10.00[a]	35.75	19.50	
Denver					
Detroit	26.50[d]	8.25[d]	36.75	20.50	
Kansas City			36.75	20.50	
Los Angeles	14.75[ab]	0.50[ab]	23.75[b]	10.00[b]	
Minneapolis[w]					
Montreal					
New Orleans					
New York					
Philadelphia					
Pittsburgh					
St. Louis					
San Francisco					
Seattle					

Benwood, W. Va.
Youngstown, O.
Indiana Harbor, Ind.
Lorain, Ohio
Aliquippa, Pa.
Sparrows Pt., Md.
Sharon, Pa.
Wheatland, Pa.
Etna, Pa.
Fontana, Calif.

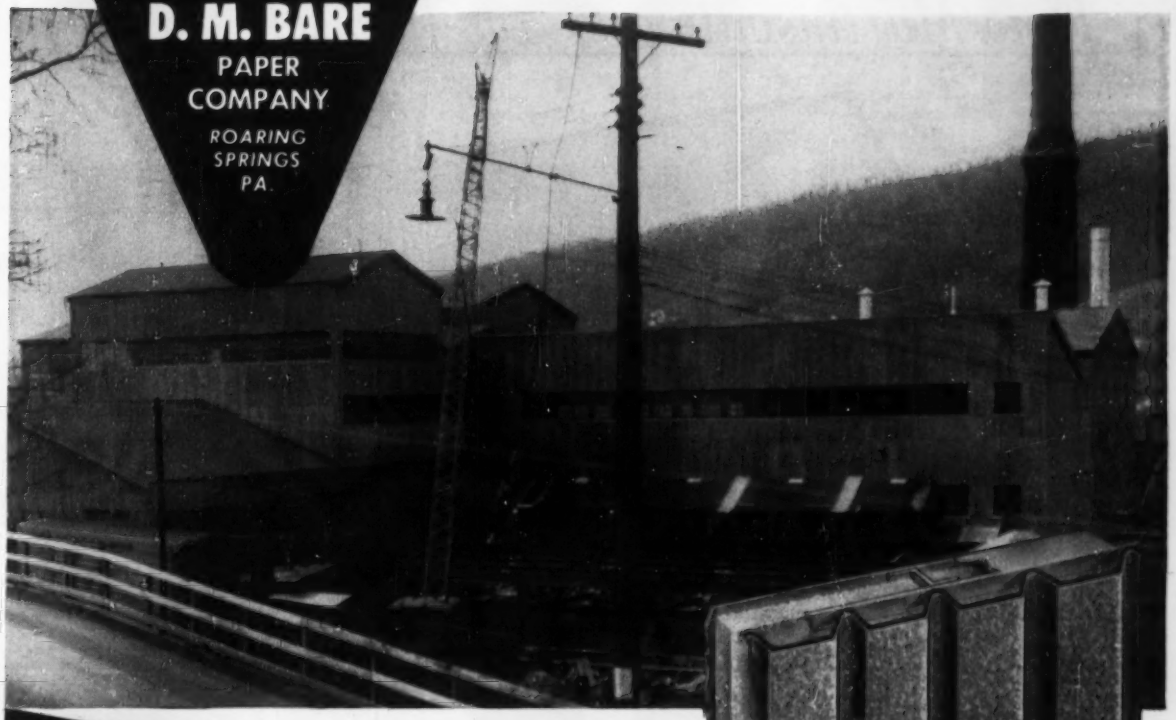
†Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in. d 6 in.

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200-44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76-41 *k reinforced, ASTM C 75-41 *t reinforced, ASTM C 76-37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13-40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60-1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob track

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following " discounts " to get Pittsburgh mill price: *Butt Weld* — 1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 39.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

The
D. M. BARE
PAPER
COMPANY
ROARING SPRINGS PA.



Partial View of
New Construction

Chose **LIFE** conditioned

Plasteel INSULATED PANELS

PLASTEEL Insulated Panels—first choice for another major industrial installation. Here is the answer to long-life, maintenance-free curtain wall construction. PLASTEEL "Mica-Protected Steel" resists corrosive fumes from acids and alkalis. And, because it practically eliminates all metal to metal contact, condensation is minimized and insulation efficiency is increased. PLASTEEL Panels have a "U" factor equivalent to 16" of masonry wall construction—permitting the use of lighter building foundations, less structural steel and more usable floor space. Also, they allow closer control of plant temperatures and humidity levels. PLASTEEL Panels are quickly erected and so flexible in design that alterations or building expansion can be easily handled at minimum cost.

Briefly, these are the advantages of PLASTEEL Insulated Panels. Let one of our sales representatives tell you the complete PLASTEEL story.

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Attention of _____ *Title*

Address _____

City _____ *State* _____ ENR 6-10-54

MAIL THIS COUPON TODAY!

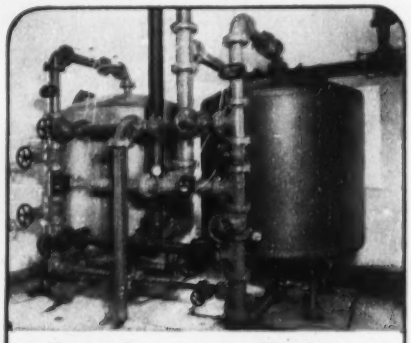
How Martinsville gets iron-free, soft water

Martinsville, Illinois Municipal Water Plant. Constructed in 1950.

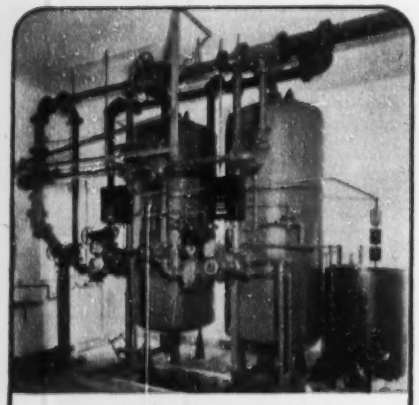
MARTINSVILLE'S untreated well water was very hard . . . an extremely wasteful nuisance!

Its 269 ppm of total hardness ruinously scaled pipes and water heaters. And further annoyed citizens by wasting soap, leaving unsightly rings around bathtubs, sticky curd on dishes and laundry. Iron of 2 ppm—which gave the water an unpleasant metallic taste—caused objectionable stains on plumbing fixtures and laundered fabrics.

These troubles were ended when Martinsville installed the Permutit equipment shown. On a recent check, we asked for the operator's opinion of our equipment.



Compact Permutit pressure filters have a 150 gpm capacity...remove iron oxidized in coke-tray aerator, reduce turbidity.



Permutit softeners remove hardness, further reduce iron to 0.02 ppm! Automatic regeneration saves time . . . provides constant supply of softened water.

Mr. O. Wiser—who is in charge of the Martinsville Municipal Water Plant—reports: "The Permutit equipment is very good . . . has worked very well with very little maintenance."

Free Technical Bulletins

Write today for full information on any water conditioning process or problem. THE PERMUTIT COMPANY, Dpt. ENR-6, 330 West 42nd Street, New York 36, N. Y.

PERMUTIT®

WATER CONDITIONING HEADQUARTERS FOR OVER 40 YEARS

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.

(Prices in italics)

	1x6 S4S	1x8 S4S	2x4 S4S	2x6 S4S	2x8 S4S	2x10 S4S	3x12 S4S	6x12 S4S	12x12 S4S
Atlanta	† **$77.00**	**$80.50**	**$71.50**	**$74.00**	**$77.50**	**$81.00**	**$79.00**		
Baltimore	* **78.00**	**80.00**	**70.00**	**70.00**	**70.00**	**75.00**	**100.00**		
	98.00g	*98.00g*	*92.50g*	*92.50g*	*92.50g*	*92.50g*	*94.50*	*$110.00*	*$110.00*
Birmingham	† **80.50**	**82.50**	**70.50**	**80.50**	**83.50**	**85.50**	**95.50**		
	78.50	*78.50*	*70.50*	*70.50*	*70.50*	*69.50*	*78.50*	*78.50*	*78.50*
Boston	**94/107a**	**99/111a**	**91/103a**	**92.50/107a**	**99/111a**	**103/111a**			
	$ *81.00a*	*84.00*	*97.00*	*97.50*	*98.00*	*98.50*	*103.00*	*106.00*	*107.00*
Chicago	** **95.00**	**98.00**	**86/87**	**95.00**	**97.00**	**100.00**	**104.00**		
	98.00	*98.00*	*100.00*	*102.00*	*103.00*	*105.00*	*111.00*	*111.00*	*111.00*
Cincinnati	* **89.50**	**95.00**	**79.75**	**88.50**	**95.00**	**97.25**	**110.75**		
	105.50	*105.50*	*107.50*	*106.00*	*107.00*	*106.00*	*132.00*	*132.00*	*132.00*
Cleveland	** **88.00**	**90.00**	**85.00**	**91.00**	**95.00**	**98.00**			
			106.00	*106.00*	*106.00*	*106.00*	*109.00*	*109.00*	*109.00*
Dallas	k† **62.00**	**70.00**	**60.00**	**60.00**	**60.00**	**60.00**	**130.00**		
Denver	* *Not in stock*		*105.00*	*107.00*	*105.00*	*106.00*	*122.00*	*158.00*	*140.00*
Detroit	‡ **103.00**	**106.00**	**97.00**	**103.00**	**110.00**	**110.00**			
	91.50	*95.50*	*101.50*	*102.25*	*99.25*	*98.00*	*108.50*	*118.00*	*118.00*
Kansas City	* **105.50**	**105.50**	**105.50**	**103.00**	**106.00**				
	109.00	*109.00*	*109.00*	*109.00*	*109.00*	*112.50*	*155.00*	*155.00*	*155.00*
Los Angeles	! *98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*123.00*	*128.00*	*123.00*
Minneapolis	# *135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*155.00*	*155.00*	*155.00*
Montreal	a**88.00**	**97.00**	**88.00**	**88.00**	**100.00**				
	110.00	*110.00*	*110.00*	*110.00*	*110.00*	*110.00*	*105.00*	*105.00*	*105.00*
New Orleans	† **100.00**	**100.00**	**92.50**	**85.00**	**90.00**	**94.00**	**118.00**		
	† *90.00*	*101.00*	*109.50*	*109.50*	*107.50*	*107.25*	*107.50*	*117.50*	*107.50*
New York	♭ **105.00**	**108.00**	**110/113**	**115/120**	**115/120**	**120/125**	**150/180**		
			Range from $115.00 to $130.00				*135/150*	*148/155*	*148/155*
New York	** **80.00**	**82.00**	**69.00**	**81.00**	**84.00**	**85.00**	**115.00**		
	88.00	*89.00*	*95.00*	*94.00*	*95.00*	*95.00*	*100.00*	*118.00*	*118.00*
Philadelphia	†		**Range from $110.00 to $127.00**				**110/127**		
			Range from $120.00 to $150.00				*150/140*	*180.00*	*180.00*
Pittsburgh	†		**Range from $95.00 to $100.00**				**110/120**		
			Range from $110.00 to $120.00				*150/140*	*140/155*	*140/155*
St. Louis	*c* **99.00***e*	**101.00***e*	**93.00***d*	**101.00***d*	**106.00***e*	**115.00***e*			
	.....	.....	*111.25d*	*118.75e*	*118.75e*	*119.75e*	*156.00e*	*156.00*	
San Francisco	A† *65.00*	*67.00*	*64.00*	*65.00*	*65.00*	*61.00*	*65.00*	*65.00*	*65.00*
Seattle	† *75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*85.00*	*85.00*	*85.00*

	LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	2x12 S4S	12x12 S4S	3/8"	1/4"
Atlanta			$22.32	$27.24
Baltimore	$154.50	$156.00	25.92*	31.60*
Birmingham	115.50	155.50	21.78	26.58
Boston	.....	.....	25.92*	31.60*
Chicago	132.00	132.00	22.45*	27.37*
Cincinnati	132.00	132.00	25.00*	30.48*
Cleveland	.....	.....	25.37*	30.93*
Dallas	115.00	115.00	18.72	22.80
Denver	.....	.....	13.92	16.98
Detroit	.....	.....	25.00*	30.48*
Kansas City	.....	.....	16.56	20.16
Los Angeles	.....	.....	16.61*ai	20.25*ab
Minneapolis	.....	.....	19.89*	24.25*
Montreal	.....	.....	.....	.....
New Orleans	150.00	148.00	18.72	22.80
New York	220/250	220/250	25.92*	31.60*
New York	190.00	190.00	.....	.....
Philadelphia	210/220	210/220	25.92*	31.60*
Pittsburgh	110/120	115/125	25.92*	31.60a
St. Louis	.....	.....	18.72	22.80
San Francisco	.....	.....	12.23*a	14.91*a
Seattle	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *n* ⅓ #1, ⅓ #2 & ⅓ #3. *A* Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¾", $152.00; on ¼", $173.00. Exterior plyform ¾" $171.00, ¼" $194.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950a Single or Double Thickness A quality	B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2365
Baltimore	78%c	80%c	.2365
Birmingham	83%	83%	.1840
Boston	77–10%	77–10%	.2365
Chicago	76%	76%	.2365
Cincinnati	76%	76%	.2365
Cleveland	76–10–10%	76–10–10%	.2765
Dallas	75%	75%	.2440
Denver	79%	79%	.2415
Detroit	78–10–10%	78–10–10%	.2365
Kansas City	80–10%	80–10%	.2415
Los Angeles	73%	78%	.2390
Minneapolis	75–10%	75–10%	.2415
Montreal	40–5%bc	40–10–5%b	21.35A
New Orleans	78%	77%	.2415
New York	80–10%	80–10%	.3975g
Philadelphia	78%	80%	.2365
Pittsburgh	80%	80%	.2090
St. Louis	80–10%	80–10%	.2415
San Francisco	70%	70%	.2365
Seattle	73%	76%	.2390

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.; $1.75 per 100 lbs. higher in Canada.

Glass: a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per ton. A F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215– .229	.2415– .249
Rocky Mtn. States	.189 – .2015	.2215– .229	.2415– .254
Pacific N. W. States	.1865– .199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165– .219	.2365– .2415

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in. — 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in. — 2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in. — 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in. — 2-ft. from butt	8-in.	91 to 100-ft.	....	....
14-in. — 2-ft. from butt	6-in.	50 to 69-ft.	.80/.88	....
14-in. — 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in. — 2-ft. from butt	8-in.	80 to 85-ft.	.83/.93	.94
14-in. — 2-ft. from butt	8-in.	85 to 89-ft.	....	1.00
14-in. — 2-ft. from butt	8-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	¢	....	....	....
	Pine	♭	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	3.40a	....	4.30/4.40a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	2.35	....	3.10	....
	Red Oak	2.20	2.75a	3.00	3.26a
	Sap Pine or Cypress	....	2.60a	....	3.11a
San Francisco	Douglas Fir	2.08af	3.08af	2.73bf	3.93eaf
Montreal	Birch or Maple	A	A	A	A

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. A No constant price available. ¢ Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.75
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.00	$327.00	$342.00	$381.00	$27.38	$27.38	$19.00	$17.50	$ .....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00*k*	41.00*k*	32.00	21.50	.....
Birmingham	126.00*p*	136.00*p*	.....	284.00*p*	.....	.....	26.50*ff*	32.00*gg*	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	36.85*p*	39.85*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	26.00	28.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	260.00*jdd*	.....	.....	.....	45.00*j*	46.00*j*	26.00*j*	26.00*j*	.....
Cleveland	170.00**	181.00**	.....	.....	.....	.....	34.50	34.50	28.25	23.25	32.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	130.00	138.00	259.00	.....	315.00	360.00	37.75*cc*	36.75*cc*	33.60	28.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	28.50	.....	32.00	26.00	28.50
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	27.50‡	.....	34.00	34.00	35.00
Minneapolis	175.00*p*	196.00*p*	407.00*p*	196.00*p*	.....	.....	35.00*wp*	45.00	39.00*bbr*	29.00*bbr*	41.00*bbds*
Montreal	165.00*aq*	181.00*au*	325.00*au*	230.00	248.00*	.....	39.50	46.00	34.80	22.00	13.75*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	147.30*h*	157.10*h*	216.00*eh*	238.10*hn*	.....	.....	40.00	.....	36.00	32.00	.....
Philadelphia	145.30	155.00	290.60	348.70	.....	.....	30/34	35/42	25.00	23.00	2.97
Pittsburgh	118.00	126.00	192.00	224.00	286.00	328.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	142.00*cc*	160.00*cc*	319.00*cc*	465.00*cc*	439.00	621.50	40.00*sl*	38.50*s*	.90*aa*	.75*aa*	1.25*aaspee*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	228.00*cc*	230.00*cc*	.....	240.00*ccw*	.....	.....	34.00*s*	49.00*s*	42.00*aaA*	37.50	3.90*mAA*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select, *hh* LCL. ‡ F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 500-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases In oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$17.00	$28.275	$3.26	$3.51	$3.01	$2.74	$3.01	$2.98	$0.405	$39.75
Baltimore	16.75	27.90	2.75	4.25	3.35	2.66	4.43	4.43	.47	45.56
Birmingham	17.00	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00*ee*
Boston	16.75	27.90	....	....	....	2.69*qq*	2.39*oo*	2.39*oo*	.42*g*	48.50*g*
Chicago	16.75	27.90	....	....	....	2.52‡*u*	2.50*to*	2.50*to*	38.00‡*bbr*	48.00‡
Cincinnati	16.75	27.90	....	....	....	2.50	2.585	2.585	.46*y*	47.86
Cleveland	16.75	27.90	2.29*pqq*	2.59*qq*	2.57*qq*	2.38*q*	2.15*o*	2.15*o*	.33*y*	40.70*kk*
Dallas	17.00	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	58.50*kk*
Denver	17.25	28.40	3.29	5.15	3.04	2.66	2.61*o*	2.61*o*	.43*ff*	47.00
Detroit	16.75	27.90	2.35	3.25	2.50	2.97	2.15*f*	2.15	.50	44.00
Kansas City	16.75	28.65	....	2.71*ys*	2.65	3.40	3.20*o*	3.20*o*	.43	53.00
Los Angeles	16.75	28.15	3.30*	4.50*	4.20*	2.63*	1.70**	*l*	.58*	‹
Minneapolis	16.75	29/88/28.02	....	....	....	2.38*idd*	2.15*hidd*	2.15*hidd*	.37*idd*	42.00*r*
Montreal	....	20.95	2.95*bll*	4.05*#ll*	3.25*#ll*	4.00*t*	3.65*tf*	3.65*t*	1.06*t‹*	3.30*t‹*
New York	16.75	27.90	....	....	....	2.24*	2.02*o*	2.02*o*	.35*z*	42.00*
Philadelphia	16.75	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.75	27.90	2.65	2.85	3.15	2.95	3.00*o*	3.00*o*	.38	45.00
St. Louis	16.75	27.90	....	....	....	2.50	2.35*h*	2.35*h*	.42*y*	48.45
San Francisco	16.75	28.15	2.40	....	3.40	2.95	4.00*aa*	....	.49	....
Seattle	16.75	28.40	3.07*mee*	2.93*mee*	....	3.58*mgee*	3.05*hmee*	....	.58*mee*	52.00*mee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *t* Net carload lot prices; Minneapolis and vicinity. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum, 50 gal. ea. *q* Per 90-lb. roll. *r* F.o.b. factory, Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement; Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt pitch in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D.* Std Black. *E.* Ready-mixed. *F.* Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. *q* Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.75	$2.50	$2.90	$2.75	$2.90	$1.28	$1.28
Baltimore	3.20*d*	2.75	3.275*f*	3.10/3.25	3.075*f*	2.975	2.975*f*	1.675*f*	1.675*f*
Birmingham	3.15	2.40	2.825*h*	2.245	2.62	2.875	2.875*h*	1.30	1.40
Boston	3.185*	2.75	3.15*	3.20 ·	3.20*e*	3.13*#*	3.10*d*	2.22*#*	2.22*#*
Chicago	3.40*kV*	3.15*rV*	3.35**	3.00*mV*	3.525*	3.37*fV*	3.24*rW*	2.35*rV*	2.35*rV*
Cincinnati	3.225	2.925	2.99*	2.75/3.00	3.10	3.12*N*	3.175*	2.02	2.02
Cleveland	3.325*f*	3.275*f*	3.275*f*	3.275	3.275	3.275	3.275*	2.525	2.525
Dallas	3.50	2.625	2.875	2.75	3.437	2.90	2.90	1.40	1.40
Denver	3.50*	2.775	2.75	2.705	3.30	3.00	3.05	1.80	1.80
Detroit	3.45*d*	3.10*	3.23*	3.23*	3.30*f*	3.32*#*	3.15*	2.35*	2.35*
Kansas City	3.625	2.75	2.90	2.725/2.97	3.25	2.987°	3.075*	2.03	2.03
Los Angeles	3.285*g*	2.70	2.925*	2.57	3.437*s*	3.20	3.225*	2.05	2.05
Minneapolis	3.225	2.80	2.82**	2.75	3.00	3.15*n*	2.875**	2.05	2.05
New Orleans	3.10	2.47	2.85**	2.65	2.675	2.925*w*	3.00*	1.425	1.425
New York	4.15*br*	3.57*bf*	3.975*	3.84*f*	4.15*d*	3.63*ae#*	3.815*bL*	2.415*#*	2.415*#*
Philadelphia	3.99‹	3.20	3.51*eM*	2.975/3.72*	3.625*S*	3.55*	3.515*	1.95	2.25
Pittsburgh	3.475*	3.20*	3.475*	3.325*	3.30*	3.35	3.00	2.025*	2.025*
St. Louis	3.62‹	3.125*	3.025*	3.125*	3.25*	3.28‹	3.05*#*	2.175*	2.175*
San Francisco	3.475*bk*	2.905**	3.075**	2.66**	3.45*	3.225*U*	3.275*R*	2.125*	2.125*
Seattle	3.40*d*	2.75*d*	2.95*d*	2.78	3.25*d*	2.925	2.95*T*	2.25	2.35*d*
Montreal*†	2.00	1.80**	1.90	1.70	2.00	1.90	1.90	1.25	1.25

* Cost of living bonus now included in basic wage, vacation pay. ‡ Includes 5¢/hr tool replacement. † Plus 2%

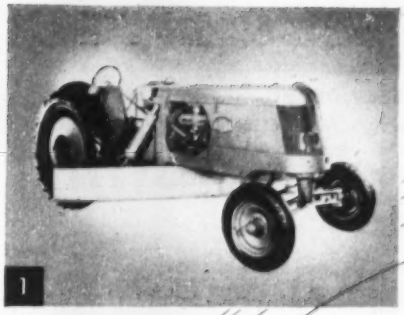
* 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. *d* Incl. 10¢ H&WF. *e* Incl. 6¢ H&WF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF. *h* $2.725 homes & housing plus 7½¢ WF. *i* Incl. 17¢ WF. *j* Incl. 10½¢/hr. WF. *k* Incl. 7½¢/hr. WF. *l* Incl. 4% VF. *m* Incl. 5¢/hr WF. *n* Incl. 25¢ H. W. Ins., Vac. & Retirement. *o* Incl. 10¢ PF, 8¢ WF. *p* Incl. 3% WF, 3% PF. *r* Incl. 4% WF and 20¢ PF. *s* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t* Incl. 7½¢ H&WF. *u* Incl. 11½% WF. *v* Incl. 10¢ WF. *w* Negotiating. *x* Incl. 8¢ WF. *y* Incl. 22½¢ WF. *z* Incl. 7½¢ IF, 5¢ H&WF. *A* Incl. 15¢ WF, 15¢ PF & 20¢ B.F. *B* Incl. 3% WF. *C* Incl. 2½¢ H&WF. *D* Plus 5% WF, plus travel pay per day. *E* Plus $4/per day Annuity contrib. *G* Incl. 11¢ H & WF. *H* Incl. 7¢ WF. *I* Incl. 15¢ H&WF. *J* Incl. 5% WF, 6PH. *K* Incl. 10¢ H&WF 10¢ VF, 2½% PF. *L* Incl. 3% WF, 3% PF, 2% VF, 1% EF. *M* Incl. 7½¢ PF. *N* Incl 1% WF O Incl 2% WF, 1% PF. P Incl. 5% WF, 6 PH. *R* Incl. 12¢ WF and 1¢ apprentice. *S* Incl. 12½¢ H and WF. *T* Incl. 21¢ H, W & VF. *U* Incl 7½¢ WF, 4% VF, 1% PF. *V* 15¢ incr. eff. 7/5/54. *W* 15¢ incr. eff. 6/14.

MEXICO CITY PRICES

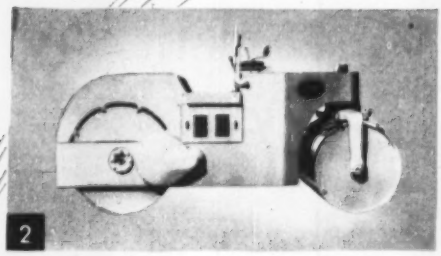
In Pesos, F.o.b. City		April '54	May '54
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.00	1.00
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.00	1.00
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day)	av. per hr.	1.13*	1.13*
Remachadores	av. per hr.		
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1310.17	1538.22
Reinf. Steel, Corr. Rods			
½" x 11 meters	per ton	1387.47	1490.00
⅝" x 11 meters	per ton	1376.26	1490.00
¾" x 11 meters	per ton	1365.05	1490.00
⅞" x 11 meters	per ton	1353.84	1490.00
1" x 11 meters	per ton	1353.84	1490.00
1" x 11 meters	per ton	1353.84	1490.00
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	68.00	68.00
Rose Gravel	per tr. load	60.00	60.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
3rd Class Pine	per M ft.	800.00	850.00
1st Class Pine	per M ft.	1500.00	1600.00
2nd Class Pine	per M ft.	1400.00	1400.00

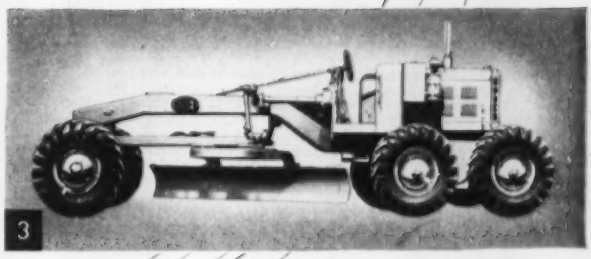
* 1st & 2nd fl., add 40% ea. addn'l floor over preceding one.
‡ Substitute for OYAMEL now restricted.

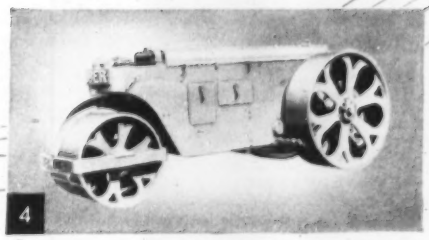
ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.133 **ENR Common Average:** $1.983.



A Complete LINE OF Proven ROAD MACHINERY







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3. **MOTOR GRADER**—Fast-acting Hydro-Mechanical controls. The Huber Motor Grader offers a blade position for every job, and reserve strength for the most difficult jobs.

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Manufacturers of Huber Maintainers, Graders and Complete Line of Rollers

HUBER

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M E SCIORRA, F S. DEMBEK, Reports.
J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Mass., Chicopee Falls**—HOSPITAL—BA 6/22—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., hospital, boiler and dental clinic. Westover Air Force Base, ENG-19-016-54-1, $2,000,000. Plans deposit $25 refundable. Cram & Ferguson, 248 Boylston St., Boston, archts. CD 5/19.

† **Me., Brunswick**—HEATING PLANT—BA 6/29—Dist. P. Wks. Office, IND, 495 Summer St., Boston 10, Mass., heating plant addns., U. S. Naval Air Station, NOY 79813, Spec. 18327. CD 10/30/51.

BIDS ASKED—BUILDINGS

Conn., New Haven—SCHOOL—BA 6/15—City Bd. Educ., 169 Church St., Sheridan High School renovations 207 Fountain St., $500,000. Plans deposit $25. Pedersen & Tilney, 111 Whitney Ave. and Harrison Baldwin, 59 Fountain St., New Haven, archts. CD 5/24.

▲ **Mass., Norfolk**—INDUSTRIAL, etc.—BA 6/16—State, Dpt. Correction, State House, Boston, P-104 Contr. 4, industrial bldgs. and garage, $1,300,000. Plans deposit $50 refundable, Abbott Assoc., Inc., 131 State St., Boston, archt. CD 2/8/52.

Mass., Belmont—TEMPLE, etc.—BA 6/23—Beth El Temple Center, Dr. Burton Whitestone, pres., Earl A. Grollman, rabbi, 220 Lexington St., (selected list bidders) masonry temple and community center, Concord Ave. and Blanchard Rd. $300,000. David J. Abrahams & Assoc., 661 Boylston St., Boston, archts. CD 4/2.

Mass., Longmeadow—SCHOOL—BA 6/24—Town, School Dpt., Howard G. Herrschaft, supt., 811 Longmeadow St., high school, Bliss Rd. and William St. $900,000. Plans deposit $100 refundable. Alderman & MacNeish, 594 Riverdale Rd., West Springfield archts. CD 8/5/52.

Conn., West Hartford—SCHOOL—BA 6/30—Town, P. School Dpt., Supt. Schools, 51 Memorial Rd. modernize Whitman Elementary School. $625,000. Plans deposit $25. Extended date. Carl J. Malmfeldt & Assoc., 36 Pearl St., Hartford, archts. CD 5/7.

SOON LETS CONTRACT—BUILDINGS

Mass., Lawrence—MANUFACTURING—Essen Packing Co., Inc., 101 Beacon St., soon lets contract (selected list bidders) mfg. bldg. addn., Beacon St. $90,000. Linenthal & Becker, 16 Lincoln St., Boston, engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

Gil Wyner Co., Inc., 12 Newland St., Malden, Mass. LB $1,034,175. Alt. A. LB $1,016,735. Alt. B. Contrs. 218, 218A, 218B Sect. 2-13 bridges, South Portland and Falmouth, Portland. Bids May 28. CD 5/14.

▲† **Davison Constr. Co.**, 1306A Elm St., Manchester, N. H. CA $5,415,098, est. over $5,000,000. Schedule 2, airmen's mess and dormitory, Portsmouth Air Force Base, ENG-19-016-54-71, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids May 26. CD 5/20.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston,

Coleman Brothers Corp., 40 Central St., Boston, Mass. CA $1,672,199, est. $1,300,000. Proj. 847 grade separation Western Ave. and Cambridge St. on Soldier's Field Rd., Brighton. CD 5/25 under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

S. & M. Constr. Co., 30 Salmon St., Providence, R. I. CA $1,542,673, est. $1,500,000. Proj. U-229 (7) hy. and bridge constr. Southern Circumferential Hy., Dedham and Westwood. CD 5/10 under LB.

S. & A. Allen Constr. Co., Inc., 9 Newbury St., Boston, Mass. CA $728,792, est. $560,000. L-401 constr. control tower, Long International Airport, EAST BOSTON, MASS. State, Dpt. Bldg. Constr., 38 Chauncy St., Boston, Mass. CD 5/6, under LB.

† **Raymond Concrete Pile Co.**, 31 St. James Ave., Boston, Mass., CA. $2,939,435. Fleet berthing facilities, U. S. Naval Base, NOY 73788, Spec. 34829, NEWPORT, R. I. Dpt. Navy, First Naval Dist., 495 Summer St., Boston, Mass. Bids May 18. CD 5/20, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Joseph Rugo, Inc.**, 581 Boylston St., Boston, Mass. LB $2,419,000. State OFFICE BLDG., Capitol and Jackson Sts., AUGUSTA, ME. State, Dpt. P. Bldgs., State House, Augusta, Me. Bids May 28. CD 5/14.

▲ **J. G. Roy & Sons Co.**, 21 Silver Spring St., Springfield, Mass. LB $1,437,213. HIGH SCHOOL DeLogia Tract, AGAWAM, MASS. Town, Supt. Schools, 100 Main St., Agawam, Mass. Bids May 27. CD 5/4.

▲ **Town**, Albert C. Cook, supt., Central St., Ashland, Mass., rejected bids May 6, JUNIOR-SENIOR HIGH SCHOOL, Concord St. next to elementary school, ASHLAND, MASS. LB $1,082,780. Will re-advertise. CD 5/11 under LB.

Joseph Rugo, Inc., 581 Boylston St., Boston, Mass. CA $711,064. est. $900,000. M-404 Contr. 1, HOSPITAL addn., Boston Psychopathic Hospital, Roxbury, BOSTON, MASS. State, Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. CD 4/27, under LB.

Industrial Constr. Co., 120 Prospect Ave., Hartford, Conn., LB $817,546, HIGH SCHOOL. Alfred Potwin Property, Town St., Route 5, EAST WINDSOR, CONN. Town, Mark H. Woodmansee, supt. Schools, Bd. Educ., Warehouse Point, East Windsor, Conn. Bids May 25. CD 4/27.

Associated Constr. Co., 1010 Wethersfield Ave., Hartford, Conn., CA, $718,000, B/A-X-72, GIRLS' PATIENT BLDG., State Training School, MANSFIELD, CONN. State P. Wks. Comr., State Office Bldg., Hartford, Conn. Bids Apr. 28. CD 5/5, under LB.

Anderson-Fairoaks Constr. Co., 145 South Marshall St., Hartford, Conn., CA, $330,000. CLUB HOUSE and swimming pool, North Main St., WEST HARTFORD, CONN. Wampanoag Country Club, Inc., 1165 N Main St., West Hartford, Conn. Bids Apr. 22. CD 4/19.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Pennsylvania**—BUILDINGS, STRUCTURES, UTILITIES, etc.—BA On or About 6/23—U. S. Eng., 121 N. Broad St., Phila., Zone 1, (a) (1) three 50x76 ft. mess halls; (4) (a) three approx. 62x77 ft. underground ammunition storage structures, (b) six approx. 65x70 ft. underground ammunition storage structures, (5) three ammunition assembly and test bldgs. (6) three 20x41 ft. generator bldgs. (7) three 6 ft. 6 in. x 6 ft. 6 in. acid storage sheds (8) misc. structures such as concrete hardstands, footings and three 3,500 lb. chain hoist davits (B) site improvs., clearing and grubbing, grading for roads and site drainage, 1,160 sq. yd. c. conc. pavement, 31,850 sq. yd. gravel surfaced roads and parking areas, drainage pipe under paved areas, approx. 1,800 lin. ft. earth mounds, 15 ft. high (C) outside utilities, incl. primary and secondary electrical distr. sys., six water supply wells, pumping equipment and distr. lines, nine sewage collection sys. with septic tanks and tile fields for the Anti-Aircraft Command, Chester and Delaware Counties, Inv. No. ENG-36-109-54-332. CD 5/12, under LB.

N. Y., Idlewild—BUILDING NO. 142—BA 6/29—At office of The Chief Engineer of The Port of New York Auth., 111 Eighth Ave., New York Zone 11, Contr. NYA 530.001, constr. Bldg. No. 142, New York International Airport. Plans deposit $30. CD 1/18.

BIDS ASKED—BUILDINGS

† **Md., Annapolis**—BANCROFT HALL—BA 6/15—Officer in Charge of Constr., U. S. Naval Academy, Annapolis, Bancroft Hall Bldg. No. 101 interior rehabilitation U. S. Naval Academy, NOY 79392, Spec. 39745. CD 11/17/47. Plans deposit $10.

N. Y., Rockaway—HOUSING IMPRVS—BA 6/15—New York City Housing Auth., 299 B'way, New York Zone 7, N. Y., street and yard improvs.; topsoil and planting for Hammel Houses, Proj. NY-5-27 in area bounded generally by Rockaway Beach Blvd., Beach 81 St., Hammels Blvd. and Beach 86 St., Queens Boro. Plans deposit $25 each. CD 4/3/52.

Md., Baltimore—BUILDING—BA 6/16—State, Dpt. P. Imprvts., 506 Park Ave., Zone 1, brick, concrete, steel building, University of Maryland Hospital. $750,000. Plans deposit $50. Jas. R. Edmunds Jr., 1025 St. Paul St., archt. CD 1/18/46.

▲ **Pa., Johnstown**—HOSPITAL—BA 6/23—Conemaugh Valley Memorial Hospital, Johnstown, 7 story brick, steel hospital addn., alterations, and altering present hospital $2,500,000. Plans deposit $75. Hunter, Caldwell & Campbell, U. S. Bank, Johnstown, archts.

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Blairsville**—PLANT—Westinghouse Electric Corp., 401 Liberty, Ave., Pittsburgh, soon lets contract 340x480 ft., brick, block, steel frame metals development plant. $5,000,000.

▲ **Pa., Pittsburgh**—WAREHOUSE—O.K. Grocery Co., 1728 Smallman St., soon lets contract 1 story, 300x300 ft., brick, block, steel warehouse. $1,000,000. Mitchell & Ritchey, 430 Alcoa Bldg., archts. CD 4/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Carlo Bianchi & Co., Inc., 24 Union Ave., Framingham, Mass., CA $4,260,261. est. $5,400,000, c. conc. 3.44 mi. c. conc. pavement on access road, 0.35 mi. b. conc. opt., 1.01 mi.; misc. work 0.02 mi., three hy. seps. comp I-beams, 282 ft., 287.1 ft. and 180.5 ft., two R.R. sep. comp. I-beams, 169 ft. and 224 ft., one Br. R.C. twin box 67.3 ft., 4.47 mi. (Acc. 0.39), Palisades Interstate Park-Goshen Ft. 1B and 2, Oxford Rd., Town Rd. and Co. Rd. 13, Oxford-Chester Sh. 5297, and Oxford-Chester SH 8076, Proj. FI-1G-1050 (7), Cont. 2, FI-1G-1050 (6), Contr. FASH 54-9, FARC 54-62, Orange Co.;

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., CA $1,232,641, est. $1,450,000, grading, drainage 7.44 mi. Sunken Meadow Spur Parkway, Cont. 2, Contr. No. SMSP 54-1, Suffolk Co. Bids May 6. CD 5/11, under LB.

Edenwald Contr. Co., 151-45 60th Rd., Whitestone, N. Y., CA $508,620, grading, constr. curbs, walks, malls, electrical sys. for street lighting, police telephone sys., landscaping and paving, etc. in Connecting Hy. from 30 Ave. to Northern Blvd., etc., NEW YORK, President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens 25, N. Y. Bids Feb. 16. CD 2/25, under LB.

† **National Constr. Co.**, 767 E. Third St., South Boston, Mass., LB $794,688, est. $1,000,000, rehabilitation existing facilities, Plattsburgh Air Force Base, ENG-30-075-54-276, PLATTSBURGH, N. Y. U. S. Eng., 50 Lafayette St., New York, N. Y. Reisner & Urbahn, 654 Madison Ave., New York, N. Y., engrs.-archts. Bids May 27. CD 4/26.

Van Lieu Van Horn, Flemington, N. J., LB, $286,500, dual sewage treatment plant and pumping station, GREENWICH, N. J. Greenwich Twp., Greenwich N. J. A. J. Lamming, 1100 S. Broad St., Trenton, Zone 10, engr.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

H. T. Osborn & Co., Inc., Franklin, Pa., LB $1,447,945, constr. 4.08 mi. sect. four-lane divided hy., paralleling the north bank of Allegheny River, incl. two plate girder bridges, U.S. Hy. 62, in Sugar Loaf Twp., from Franklin and extending to point approx. 1.34 mi. southwest of Oil City, Venango Co. Bids May 28. CD 5/5.

▲ **Union Swith & Signal Div. of Westinghouse Air Brake Co.**, Swissvale, Pa., CA $1,623,095, automatic block

(Continued on page 86)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

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Lowest priced no-shift driving on low-tonnage trucks! Truck-o-matic transmission with gyrol Fluid Drive!

Easiest entry and exit—lowest cab floor, widest door opening saves time and effort when you're stepping in and out!

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Most efficient controls—all hand controls and dispatch box are in center of instrument panel within easy reach!

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DODGE "Job-Rated" TRUCKS

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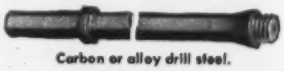
Carbide Rok-Bits: chisel or cross types — gage sizes 1¼" thru 4".



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Philadelphia 25, Pa.	Asheville, N.C.	Los Angeles 58, Calif.	Dallas, Texas

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Ruggedly-Built

PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models — heavy and extra heavy. Standardized line also contains 11 double-acting hammers and 5 single-acting hammers. Write for bulletin.

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HK 349

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AIR ENTRAINING AGENT

1. Liquid can be added to gauge water or introduced into mix
2. Provides greater control — more flexibility to meet individual specifications
3. Small quantity produces maximum air dispersion
4. Will not settle out in storage or gum dispensers

Servicised Air Entraining Agent is a low cost, extremely stable solution which, when added to gauge water or introduced directly into the mix, permits strict compliance with air entrainment specifications. In addition, the concrete mix is more plastic . . . handles easier . . . flows freely requiring less attention during pouring . . . less vibration after placement. Available in 5 gallon cans or 53 gallon drums.

Write for complete details and illustrated circular.

SERVICISED PRODUCTS CORPORATION

6051 West 65th Street, Chicago, Illinois

(Continued from page 84)

signaling and interlocking sys. for Market St. Subway ext. and Woodland Ave. ext. of subway surface trolleys, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. CD 3/30, under LB.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

Robt. T. Main, Box 1, Salem, Va. LB, $838,687. grading, drainage, surf. 4.74 mi. North South Route, Contr. K 188-5-220, Kent Co.; LB, $768,933. grading, drainage, surf. 4.62 mi. National north south route, Contr. K 188-6-220, Kent Co.; LB, $1,607,620. combined bid of Contrs. K 188-5-220 and K 188-6-220, Kent Co.;

H. T. Campbell Sons Corp., Towson, Md. LB, $190,760. wid'n., drainage, resurf. 0.661 mi. State Rte. 139, Contr. B 661-2-420., Baltimore;

Keeley Constr. Co., Clarksburg, W. Va. LB, $449,703. grading, drainage, surf. 0.884 mi. relocation on U. S. Rte. 40 incl. steel beam bridge to carry S. R. 546 over Rte. 40, Little Savage Mountain, Contr. G 267-2-620, Garrett Co.;

Nello L. Teer Co., Box 1131, Durham, N. C., LB, $532,199. surf. 2.132 mi. U. S. Rte. 13, south of Salisbury, Contr. WI 28-1-220, Wicomico Co. Bids May 25. CD 5/12.

▲ **Costanza Constr. Co.**, Vickers Bldg., Baltimore 2, Md. LB $1,498,500. brick, concrete, steel Incinerator No. 4, bldgs., site imprvs., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids May 26. CD 5/11.

† **D. C., WASH. and MARYLAND**—Bureau P. Rds., Dpt. Commerce, 11440 Columbia Pike, Arlington, Va.

Taylor & Keebler, Inc., Box L-121, Clinton, Md. LB, $249,736, 0.653 mi. Anacostia River Bridge approaches, Baltimore-Washington Parkway, Prince George's County. Bids May 25. CD 5/6.

DELAWARE—State Hy. Dpt., Dover,

Waco Contg. Co., 5013 Belair Rd., Baltimore, Md., LB, $177,904, bit. Contract 1338, New Castle Co.;

Asphalt Service Co., Chesapeake Ave. and Verona St., Baltimore, Md., LB, $70,584, bit., Contract 1339, Kent Co.;

Delmarva Asphalt Co., Seaford, Del., LB, $217,786 bit., Contract 1340, Sussex Co. Bids May 26. CD 5/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. Rich Steers Co.**, 17 Battery Pl., New York 4, N. Y., LB $2,410,000, general constr., Marine TRANSFER STATION, Greenpoint, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids May 26. CD 4/30.

▲ **Lasker-Goldman Corp.**, 50 E. 42 St., New York 17, N. Y. LB $2,835,000, general constr.;

Mechanical Installations, Inc., 24-16 Bridge Plaza South, Long Island City, N. Y., LB $977,000, heating;

C. K. Rehner, Inc., 623 10th Ave., New York 19, N. Y. LB $730,537, plumbing;

RAO Electric Equipment Co., 150 E. 41 St., New York 17, N. Y., LB $683,700, electrical work for alterations, addns. to BASIC SCIENCES BLDG., State University Medical Center, SYRACUSE, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids May 27. CD 4/16.

John A. Sarubbi, 415 64 St., West New York, N. J., LB, $575,000, general contract gymnasium and library bldgs. New Jersey State Teachers College at North Haledone, PATERSON, N. J. New Jersey Div. Purchase & Property, State House, Trenton, N. J. Lawrence C. Licht, 19 Knickerbocker Rd., Englewood, N. J., archt.

▲ **Wm. J. Lyons Co., Inc.**, 99 Westport Ave., Norwalk, Conn., CA, $1,575,000, general contract HIGH SCHOOL, St. George Ave., WOODBRIDGE, N. J. Bd. Educ., Woodbridge, N. J. Bids Mar. 23. CD 4/26, under LB.

▲ **Rust Furnace Co.**, 575-77 6th Ave., Pittsburgh 19, Pa. CA. design and construct two heat treating FURNACES for pipe annealing, ALIQUIPPA, PA. Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh, Pa.

▲ **Baton Constr. Corp.**, 1717 Sansom St., Phila., Pa. CA $1,300,000. men's DORMITORY, PHILA., PA. University of Pennsylvania, 209 S. 36 St., Phila., Pa. Bids May 19. CD 4/29.

Paul Glenn, 17 S. Dock St., Sharon, Pa., CA $599,980. 1 story, 66,000 sq. ft. brick, block Junior-Senior HIGH SCHOOL, PORT ALLEGANY, PA. Port Allegheny Joint School Dist., Port Allegany, Pa. CD 4/29, under LB.

† **Bonwit Constr. Co., Inc.**, Gold St., New York, N. Y. LB $479,800. 6 SCHOOL SHOP BLDGS., AUTOMOTIVE SHOPS, roads, aprons, utilities, ENG-18-020-54-43, ABERDEEN PROVING GROUND, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. CD 4/23.

▲ **Ragner Benson, Inc.**, 2 Gateway Center, Pittsburgh, Pa. CA. Approx. $1,000,000. brick, block, steel STEEL MILL expansion, VANDERGRIFT, PA. United States Steel Corp., 52 S. Wm. Penn Pl., Pittsburgh, Pa.

Palladi Constr. Co., 641 Aldershot Rd., Baltimore, Md. Owner Builds: 47 masonry DWELLINGS, Carmello Dr., Malden Choice Village, near CATONSVILLE, MD.

William T. Lyons Co., 1700 Friendship St., Baltimore, Md. LB $461,000. steel, masonry noise suppression CHAMBER, MIDDLE RIVER, MD. Glenn L. Martin Co., Middle River, Md. CD 6/16.

Loch Constr. Co., Milford Mill Rd. and W. M. R.R., Baltimore, Md. CA $336,000. 42 masonry DWELLINGS, Tolgate, Wingate and Lingate Rds., near PIKESVILLE, MD. Wm. F. Chew Co., Pikesville, Md.

▲ **Kirby & McGuire, Inc.**, 2518 Greenmount Ave., Baltimore, Md. LB $1,942,928. brick, block, concrete, steel Junior Senior High SCHOOL, Patapsco Neck,

Sparrows Point, TOWSON, MD. Baltimore Co. Bd. Educ., Aiguburth Rd., Towson, Md. Bids May 25. CD 5/11.

▲ **O'Driscoll Constr. Corp.,** Wire Bldg., Wash., D. C., CA **$1,989,250,** Proj. DC 1-18, Section 2, East Capitol DWELLINGS, 186-dwelling units, East Capitol St. and 59 St. S.W., WASH., D. C. National Capitol Housing Auth., 1729 N. Y. Ave. N.W., Wash., D. C. William Ballard, 123 E. 77 St., New York, N. Y., archt. CD 4/9, under LB.

M. Pollin &Sons, 931 Longfellow St., N. W., Wash., D. C., Owner Builds, **$300,000,** 38 semi-detached brick, cinder blocks dwellings, 11, Galloway and Hamilton Sts. N. E., WASH., D. C. Berla & Abel, 1636 Connecticut Ave. **N. W., Wash., D. C., archts.**

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **N. C. Cherry Point**—PARACHUTE LOFT—BA 6/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, Va., parachute loft exten. Marine Corps Air Station, NOY 83282, Spec. 42752. Plans deposit $10.

† **N. C., Cherry Point**—SAFETY MODIFICATIONS—BA 6/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., safety modifications to engine test cells, Marine Corps Air Station, NOY 81567, Spec. 41836. Plans deposit $20.

† **N. C., Jacksonville**—RUNWAY, etc.—BA 6/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., resurf. runway and taxiway, Marine Corps Air Facility, New River, NOY 83267, Spec. No. 41923 S/F. Plans deposit $10.

† **Va., Little Creek**—BUILDING REPAIRS—BA 6/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, repairs to misc. bldgs., Naval Amphibious Base, NOY 83203, Spec. No. 41837. Plans deposit $10. CD 3/27/53.

† **Va., Norfolk**—ENGINE TEST CELLS—BA 6/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, safety modifications to engine test cells, Naval Air Station, NOY 83278, Spec. 41931. Plans deposit $30. CD 1/25.

† **Va., Portsmouth**—WATERFRONT REPAIRS—BA 6/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, waterfront repairs, Naval Ammunition Depot, St. Juliens Creek, NOY 83240, Spec. 41908 S/F. Plans deposit $10.

† **N. C., Cherry Point**—FIRE ALARM SYS.—BA 6/17—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, Va., fire alarm sys. extens., Marine Corps Air Station, NOY 83266, Spec. 41922. Plans deposit $10.

† **Va., Portsmouth**—CRANE TRACK EXTEN.—BA 6/17—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, crane track exten. and resurf. at Drydock No. 8, Norfolk Naval Shipyard, NOY 82854, Spec. 42710. Plans deposit $30.

† **Va., Roanoke Rapids**—BA. About 6/17—U. S. Eng., 308 Customhouse, Wilmington, N. C., water supply well, Inv. No. ENG-31-075-54-25. Plans deposit 40c.

† **Georgia**—BA About 6/24—U. S. Eng., 200 East St. Julien St., Savannah, reconditioning slopes of Macon Levee, Macon, Serial No. CIVENG-09-133-54-36.

BIDS ASKED—BUILDINGS

† **N. C., Fort Bragg**—SHOPS, etc.—BA 6/17—U. S. Eng., 308 Customhouse, Wilmington, tank repair shops and service facilities, ENG-31-075-54-13. CD 5/5.

S. C., Columbia—STUDENT UNION—BA 6/17—University of South Carolina, Columbia, 3 story, 66,000 sq. ft. student union bldg. Plans deposit $100. Lyles, Bissett, Carlisle & Wolff, 1321 Bull St., archts.-engrs. CD 10/1.

Va., Arlington—SCHOOL—BA 6/24—Arlington Co. School Bd., 1426 Quincey St., Glen Carlyn School. $500,000. Plans deposit $25. Allen J. Dickey, 704 N. Glebe Rd., archt. CD 1/12/53.

▲ **Ga., Newman**—SCHOOLS—BA 6/24—Coweta Co. Educ., Newnan, school projects, $1,000,000. Plans deposit $50. CD 8/26/52.

▲ **Va., Norfolk**—HIGH SCHOOL—BA 6/24—City School Bd., 402 E. Charlotte St., 1 and 2 story, masonry Northside Junior High School. $1,500,000. Plans deposit $50. Rudolph, Cooke & Van Leeuwen, Inc., 355 Monticello Arcade, archts. CD 5/14, under LB.

▲ **Ga., Statesboro**—SCHOOLS—BA 6/29—Bulloch Co. Bd. Educ., Statesboro, school projects. $1,200,000. Plans deposit $50. CD 12/28/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Samuel Zarpas,** 514 Rhode Island Ave. N. E., Wash. D. C., LB **$397,300.** Battery No. 11, launching and control, ENG-49-080-54-57-(49), vicinity Vienna, VIRGINIA. U. S. Eng., 1st and Douglas Sts. N. W. Wash. D. C. Bids May 25. CD 4/29.

WEST VIRGINIA—State Rd. Comn., Charleston.

R. N. Hewitt Corp., 703½ Penna Ave., Charleston, W. Va., CA, **$218,904,** 0.153 mi. Patric St. Interchange (US 60), Fed. Interstate Proj. FI 221 (16) Kanawha Co. Bids May 18, awarded May 25. CD 5/12.

Christopher Constr. Co., 40 W. Gay St., Columbus, O. LB, **$734,802,** Proj. WVA 46-P-4, Unit 1, sewage treatment plant, CHARLESTON, W. VA. Charleston Sanitary Bd., City Bldg., Charleston, W. Va. Bids May 21. CD 5/3.

C. T. Bennett Constr. Co., Kings Mountain, N. C. LB **$104,000.** two bathhouses and two swimming pools,

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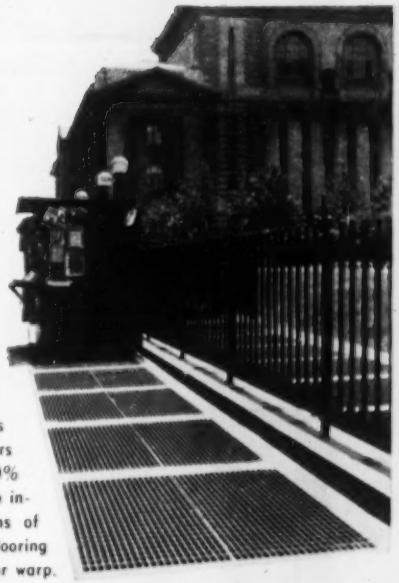

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KINGS MOUNTAIN, N. C. Kings Mountain Recreation Comn., Kings Mountain, N. C., Charles M. Graves Organization, 795 Peachtree St. N.E., Atlanta, Ga., engr.

F. D. Cline Paving Co., 6 E. Davie St., Raleigh, N. C., LB $232,663, street imprvs., RALEIGH, N. C. City, City Hall, Raleigh, N. C. Bids May 17. CD 5/12.

FLORIDA—State Road Dpt., Tallahassee.

Scott Constr. Co., Thomasville, Ga., CA, $759,744, bridge over St. Johns River at Crows Bluff and roadway approaches State Rd. No. 44, Job 1111-106 and 7907-108, Lake and Volusia Counties. Bids Apr. 20. CD 4/23, under LB.

† McKay-Helgerson Co., 320 N. Hudson St., P. O. Box 57, Greenville, S. C., LB, $758,000, Missile SHOP, "H", Patrick Air Force Base, Inv. 54-56, COCOA, FLA. U. S. Eng, P. O. Box 4970, Jacksonville, Fla. Bids May 14. CD 4/7.

▲ Houston Contg. Co., 2707 Ferndale St., Houston, Tex. CA $1,765,000. 65 mi. 12 in. products pipe line Baton Rouge to Norco Refinery, Baton Rouge, LOUISIANA. Shell Pipe Line Corp., Shell Bldg., Houston, Tex. CD 5/14.

Barber Bros., Box 629, Baton Rouge, La. CA $575,529. approx. 10 mi. streets, LAFAYETTE, LA. City, Lafayette, La. Bids Apr. 13, awards May 18. CD 4/23 under LB.

▲ Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. CA $1,132,674. concrete street paving in Lake Terrace area, NEW ORLEANS, LA. Orleans Levee Dist., Civil Courts Bldg., New Orleans, La.

▲† Peter Kiewit Sons Co. & Albert Johnson, 1024 Omaha National Bank Bldg., Omaha, Neb. LB $3,777,000, est. $4,160,000. joint venture, reconstr. Lock No. 1 Operations Bldg., access road, Spottsville, KENTUCKY. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids May 27. CD 5/5.

▲ City, Court House—City Hall Bldg., Nashville, Tenn. will readvertise constr. of 13,000 ft. sewer tunnel, NASHVILLE, TENN. Contractor withdrew bid of $1,730,000 because of error. Est. $2,000,000. CD 5/25 under CA.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Southampton Co. School Bd., Courtland, Va. cancelled bids to have been opened May 20, 2 story masonry Consolidated HIGH SCHOOL, COURTLAND, VA. Est. $1,000,000. CD 4/29.

Wiley N. Jackson Co., Inc., R.F.D. 4, Roanoke, Va., CA clearing portion of 1,200 acre site for OIL REFINERY, HORNSBYVILLE, VA. Pan American Refining Corp., 122 E. 42 St., New York, N. Y. Bids May 14. CD 5/11.

▲ Baker & Koons, Inc., Morgantown, W. Va., CA, Total est cost $13,000,000 (1st. unit) grading, site preparation, railroad, water supply, roads and some BUILDINGS for silicones plant at Long Reach near here, ST. MARY'S, W. VA. Union Carbide & Carbon Corp., Linde Air Products Div. 30 East 42 St., New York 17, N. Y. CD 7/17.

Fiske-Carter Constr. Co., Spartanburg, S. C., CA SHOP BLDG. and other facilities, HAMLET, N. C. Seaboard Airline R. R. Co., W. D. Simpson, ch. engr., S.A.L.R.R. Bldg., Norfolk 10, Va. Bids May 17. CD 12/11/52.

Young Constr. Co., Pineville Rd., Charlotte, N. C. CA $518,002. two SCHOOLS, BENNETTSVILLE, S. C. Marlboro Co. Bd. Educ., Bennettsville, S. C. Lyles, Bissett, Carlisle & Wolf, 1321 Bull St., Columbia, S. C., archts.

▲ Byck-Worrell Constr. Co., 318 E. Bay St., Savannah, Ga. LB, $4,393,000 HOUSING, Project Ga.-6-7, ATLANTA, GA. Atlanta Housing Auth., 419 Trust Company of Georgia Bldg., Atlanta 3, Ga. Bids May 20. CD 4/13.

Christian & Bell Co., 667 Spring St. N.W., Atlanta, Ga. CA, $848,443, LABORATORY and TESTING BLDG., ATLANTA, GA. State Hy. Dpt., State Capitol, Atlanta, Ga. CD 5/21, under LB.

Fred G. Fett, Jr., Long Island Dr., Atlanta, Ga. Force Account, $525,000, 37 RESIDENCES, ATLANTA, GA.

▲ Strother-Barge Co., 189 Cain St. N.E., Atlanta, Ga., LB, $1,197,250, HOSPITAL, DALTON, GA. City and Whitfield Co., Dalton, Ga. Bids May 13. CD 5/5.

▲ Delta Constr. Co. & Paul H. Kesling, Waycross, Ga. LB, $1,115,000, HOSPITAL, WAYCROSS, GA. Ware Co., Waycross, Ga. Bids May 25. CD 5/20.

▲ S. J. Curry & Co., Albany, Ga. LB, $1,173,600, INFIRMARY for Senile Patients, State Hospital, CHATTAHOOCHEE, FLA. State Imprvt. Comn., Caldwell Bldg., Tallahassee, Fla. Bids May 27. CD 5/20.

▲ Lake Blue Estates, 214 Alhambra Circle, Coral Gables, Fla., Force Account, $1,000,000, 132 RESIDENCES, LAKE PLACID, FLA.

Arnold Constr. Co., 7 Murray Bldg., Palm Beach, Fla., LB, $889,777, HOSPITAL, SANFORD, FLA. Seminole Co. Comn., Court House, Sanford, Fla., Bids May 20. CD 4/15.

Robt. D. Short Co., 736 W. Main St., Lexington, Ky. LB $723,200. HOSPITAL addn., alterations, BEREA, KY. Berea College, Berea, Ky. Bids May 21. CD 5/5.

▲† Geo. A. Fuller Co., Munsey Bldg., Wash., D. C. CA $7,449,000, est. $7,987,411. station HOSPITAL, FORT KNOX, KY. U. S. Eng., 380 W. Broadway, Louisville, Ky. Bids May 20, awarded May 21. CD 4/13.

▲ Pennington & Macabee, Lafollette, Tenn., LB $1,074,840 WOMENS DORMITORY, KNOXVILLE, TENN. University of Tennessee, Knoxville, Tenn. CD 6/25/53.

G I Home Builders Corp., Woodland St., Knoxville, Tenn. Force Account. $500,000. APARTMENT units, KNOXVILLE, TENN.

† Shelby Constr. Co., 1106 Canal St., Memphis, Tenn., LB $594,000. auto parking GARAGE, Front and Monroe Sts., MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Bids May 4. CD 4/15.

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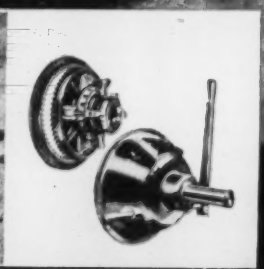

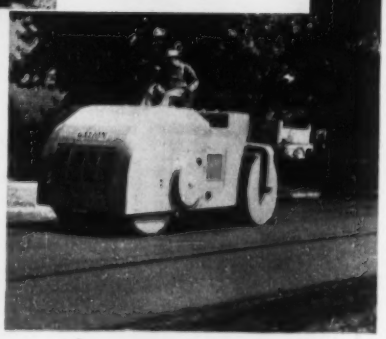

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BIDS ASKED—HEAVY CONSTRUCTION

Wis., Menomonee Falls—BA 6/21—Village, sewage treatment plant, sewers, equip. $240,000. Ruekert & Mielke, 203 N. Grand Ave., Waukesha, engrs. CD 3/2.

Wis., Milwaukee—BA 6/22—City, City Hall, steel water storage tank, W. Lincoln Ave. and S. 37 St. Plans deposit $10. Lloyd D. Knapp, city engr.

† Illinois—BA 6/24—U. S. Eng., 320 Locust St., St. Louis 2, Mo., pressure relief wells and collector system, East St. Louis and vicinity, (East Side Levee and Sanitary District), Proj. Item V-A (4), Madison and St. Clair Counties, CIVENG-23-065-54-116. CD 12/8/52.

BIDS ASKED—BUILDINGS

Ind., Richmond—BA 6/15—Richmond Young Women's Christian Assn., Mrs. Gordon Magaw, Building Com., Richmond, Y.W.C.A. Addn. $350,000. Plans deposit $25. CD 4/27/53.

Mich., Kawkawlin—SCHOOL—BA 6/18—Monitor School Dist. 6, Otto Richtor, secy., brick elementary school. Plans deposit $25 refundable. Samuel C. Allen, 603 Bearinger Bldg., Saginaw, archt.

O., Akron—HIGH SCHOOL—BA 6/21—B. Educ., 70 N. Broadway, West High School alterations, 315 S. Maple St. Plans deposit $15. Edwin F. Bliss, c/o owner, archt. CD 11/16/50.

† Wis., Baraboo—BUILDINGS—BA About 7/2—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, 11 wood frame buildings, 3 concrete basins with pits, and related facilities, Badger Ordnance Works, ENG-47-013-54-20.

Ill., LaGrange—POLICE STATION, etc.—Bids Asked—Village, Village Hall, police and fire station, 300 W. Burlington Ave. $360,000. Norman Millet & Assoc., 1167 Wilmette Ave., Wilmette, Ill., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15,

Lombardo Bros. Constr. Co., 3600 Ridge St., Cleveland, O., LB $2,988,627, 2¼ mi. Ohio Turnpike, incl. 2 single bridges and 5 twin bridges at Elyria, Lorain Co. Bids May 26. CD 5/5.

Foley Constr. Co., 5050 Orchard St., Cincinnati, O. LB **$179,263**, est. $194,000, imprv. Fairbanks Ave. from north of River Rd. to Delhi Ave., CINCINNATI, O. City, City Hall, Cincinnati, O. T. J. Montgomery, Cincinnati, O., city engr. Bids May 25. CD 5/17.

W. L. Harper Co., 2910 Highland Ave., Norwood, O. CA **$103,000**, est. $105,000, approx. 2,000 ft. street, 4,800 ft. water, sewer lines in Faywood Proj. off Sidney Rd., CINCINNATI, O. The Arcose Co., 4997 Glenway Ave., Cincinnati, O. Joseph Allen, 4638 Glenway Ave., Cincinnati, O., engr. Awarded May 25.

† **Harry E. Miller, Inc.**, Groveport, O., CA **$266,529.** base and wing headquarter bldgs. at Lockbourne Air Force Base, Serial No. ENG-46-22-54-21, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids May 21. CD 4/28.

† **Morris Skilken & Co., Inc.**, 44 E. Broad St., Columbus, O., LB **$245,641**, instrument test and calibrations laboratory, Area B, Wright-Patterson Air Force Base, Inv. No. ENG-15-029-54-57, DAYTON, O. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids May 25. CD 4/27.

Charles F. McCurdy, Inc., 906 Main St., Cincinnati, O. LB **$814,209**, est. $1,065,000, water and gas lines, in south sect. of HAMILTON, O. City, City Hall, Hamilton, O. Bids May 17. CD 5/5.

W. L. Harper Co., 2910 Highland St., Norwood, O., CA Approx. **$300,000**. 7,500 ft. concrete street, 9,000 ft. 12 in. sanitary sewer, 5,000 ft. storm sewer, off Hunt Rd., READING, O. The Triton Co., 1539 Cedar Ave., Cincinnati, O. James Wald & Assoc., 1721 Dallas Ave., Cincinnati, O., engrs. Awarded May 24.

Kenny Constr. Co., 3220 Oakton St., Evanston, Ill., LB, **$551,840**, auxiliary sewer Beverly Calumet Longwood, Winchester and 95 Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids May 19. CD 5/12.

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., CA, **$115,548**, paving Chicago Ave. and Custer St., EVANSTON, ILL. City, City Hall, Evanston, Ill Awarded May 18.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Edward Kramer & Sons, Plain, Wis., LB, **$93,525**, Contract 1, structure and approaches 0.758 mi. Proj. S 0957 (1), Racine Co.;

Wausau Constr. Co., Wausau, Wis., LB, **$136,996**, Contract 1, structure B-43-2, Proj. F 09-2 (23) Oneida Co. Bids May 25. CD 5/10.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,

R. W. Ryan Co., Janesville, Wis., LB, **$195,576**, Contract 1, 4.248 mi. Projs. S-0313 (1) and T 0313 (1), Monroe Co.;

L. G. Arnold, Inc., Eau Claire, Wis., LB, **$171,043**, Contract 1, 4.106 mi. Proj. T 059 (6), Dunn Co.;

Phillip C. Kaiser, Portage, Wis., LB, **$185,606**, Contract 1, 3.974 mi. Proj. F 09-2 (20) and F 021-2 (21), Oneida Co.;

W. L. Kimmes, Inc., Superior, Wis., LB, **$288,616**, Contract 1, 4.08 mi. Proj. S 0789 (3) and T 0789 (1), Douglas Co.;

James Cape & Sons Co., 468 Water St., Racine, Wis., LB, **$146,770**, Contract 1, 0.631 mi. Proj. S 04-1 (12) and T 064-1 (14), Walworth Co.;

Arrow Petroleum Co., 4811 Harlem St., Berwyn, Ill., LB, **$111,093**, Contracts 1 and 3, 5.268 mi. Proj. T 016-1 (15) and S 0248 (1), Jefferson Co.;

Mathy Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis., LB, **$133,832**, Contract 1, 11.933 mi. Proj. T 056-1 (5), Jefferson Co.;

Payne & Dolan of Wisconsin, Inc., 735 N. Water St., Milwaukee, Wis., LB, **$122,617**, Contract 1, b. conc. 8.482 mi. Proj. T 0469 (5) and T 0469 (6), Kenosha and Racine Counties;

H. Turner & Son, Boscobel, Wis., LB, **$341,399** Contract 1, 8.29 mi. Proj. T 02-1 (14), Kenosha Co.; LB **$209,916** Contract 1, 6.007 mi. Proj. U 69-3 (1) and T 04-4 (11), Wood Co.;

Arthur Overgaard Co., Elroy, Wis., LB, **$71,877** Contract 2, 4.248 mi. Proj. S 0313 (1) and T 0313 (1), Monroe Co. Bids May 25. CD 5/10.

† **Commercial Contg. Corp.**, 12160 Cloverdale Ave., Detroit 4, Mich. CA **$307,131**, tactical and service facilities, SELFRIDGE AIR FORCE BASE, MICH. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. CD 2/19/53.

BUILDINGS

LOW BIDS AND CONTRACTS

Wagner, Inc., 3855 Alta Ave., Cincinnati, O., CA **$335,838**, 1 story, brick, stone bsmnt., CHURCH, 1619 California Ave., CINCINNATI, O. St. Agnes Church, 1619 California Ave., Cincinnati, O. Bids May 13, awarded May 25. CD 5/5.

▲ **Penker Constr. Co.**, 1030 Summer St., Cincinnati, O. CA **$1,129,950**. Cumminsville Junior HIGH SCHOOL, Beechill and Langland Ave., CINCINNATI, O. Bd. Educ., 608 E. McMillan St., Cincinnati, O. Bids May 18, awarded May 25. CD 5/21, under LB.

SCK Corp., c/o Leonard H. Krill Co., Inc., 2169 E. 33 St., Cleveland 15, O. Owner Builds. $500,000. 1 story, 65,000 sq. ft. masonry aircraft and industrial fittings PLANT, parking facilities, Brookpark and Stumpf Rds., CLEVELAND, O. McGeorge-Hargett & Assocs., 7016 Euclid Ave., Cleveland 3, O., engrs.-archts. Aircraft Fitting Co., 1400 E. 30 St., Cleveland, O., lessee.

▲ **Herbert Jay Constr. Co.**, 13101 Astor Ave., Cleveland, O. Owner Builds. $1,000,000. 70 1½ story, bsmnts. HOMES, Puritas Rd., W. 193 St. area, to be known as Metropolitan View subdivision, CLEVELAND, O.

▲ **Procon Co.**, Des Plaines, Ill., CA Approx. **$10,000,000.** 10,000 bbl. per day PLATFORMING CATALYTIC REFORMING UNIT at refinery, CLEVES, O. Gulf Re-

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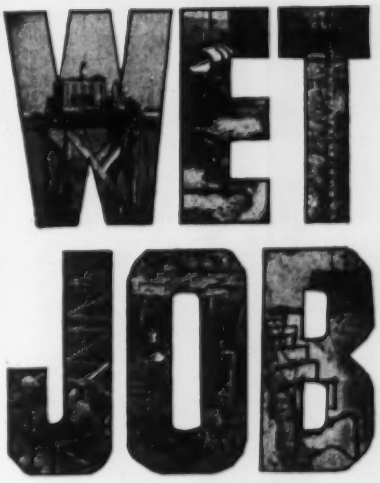

PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
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Now CONCRETE and other POROUS MASONRY can be made completely water repellent

Above or below grade masonry

ARMOR COAT

ARMOR COAT prevents above or below grade penetration of water in masonry constructions—such as basements, reservoirs, tunnels, etcetera. In addition to water repellent qualities, it is recommended for beautification of homes, commercial and industrial buildings.

During the war ARMOR COAT was used in waterproofing and decorating below grade military workings in England. Many types of paint were tried. ARMOR COAT was the only paint that combined excellent decorative features with high resistance to such severe water pressures below grade.

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SILINITE

SILINITE is the revolutionary water repellent discovery for use on porous masonry. This clear Silicone base compound gives longlife protection. Concrete, stucco, brick, tile, flagstone and sandstone, new or old, are inexpensively treated with SILINITE and retain their original color and texture. It penetrates, becoming a part of the masonry.

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ARMOR LABORATORIES, INC.
Dept 103
538 Commercial St., Glendale, Calif.

Please send me complete information on how to keep porous masonry "Dry as the Desert."

Name_____

Company_____

Street Address_____

City_____ Zone____ State_____

fining Co., 3222 Beckman St., Cincinnati, O. (Correction—location of project). CD 5/24, under CA, O., Cleveland.

Haig M. Boyajohn & Assoc., Inc., 990 W. Third Ave., Columbus, O., CA $759,435. 577-car ramp-type steel concrete PARKING GARAGE, COLUMBUS, O. City, City Hall, Columbus, O. CD 5/5, under LB.

▲ Mayfield-Ford Road Co., c/o Frank H. Feingold, Society for Savings Bldg., Cleveland 14, O. Own Forces. $2,600,000. 130 one and one half story ranch type and colonial HOMES, subdivision imprvs., Mayfield and Ford Rds., LYNDHURST, O.

Tonn & Blank, 104 N. Franklin St., Michigan City, Ind., CA $315,000, SCHOOL, Long Beach, MICHIGAN CITY, IND. Notre Dame Parish, Michigan City, Ind. Harold A. Fullerton, 152 Washington St., Albany, N. Y., archt. Awarded May 17.

▲ Ragnar Benson, Inc., 4744 W. Rice St., Chicago 51, Ill., CA, $1,132,621, HIGH SCHOOL and GYMNASIUM, BENSONVILLE, ILL. School District No. 10, York Rd., Bensonville, Ill. Bids May 12, awarded May 19. CD 5/18, under LB.

Ragnar Benson, Inc., 4744 W. Rice St., Chicago 51, Ill., CA, $750,000, 3 story, bsmnt., 60,000 sq. ft. Kildare DIAL EXCHANGE, CHICAGO, ILL. Illinois Bell Telephone Co., 306 W. Washington St., Chicago 6, Ill. Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., archts. Awarded May 19.

▲ C. W. Haynes Co., 135 S. La Salle St., Chicago 3, Ill. CA $1,000,000, 2 story, bsmnt., fabric PLANT, CHICAGO, ILL. Joanna Western Mills, 21 and Jefferson Sts., Chicago, Ill. Vern E. Alden Co., 33 N. La Salle St., Chicago 2, Ill., engr. Awarded May 17.

The Austin Co., 510 N. Dearborn St., Chicago 10, Ill., CA, $110,000, design and construct FACTORY addn., CHICAGO, ILL. B. H. Bunn, 7612 S. Yale St., Chicago, Ill. Awarded May 17.

Carroll Constr. Co., 333 N. Michigan Ave., Chicago 1, Ill., CA, $600,000, reconstruct HOTEL interior, CHICAGO, ILL. Hotel Conrad Hilton, 8 and Michigan Aves., Chicago, Ill. Holabird & Root & Burgee, 180 N. Michigan Ave., Chicago 11, Ill., archts. Awarded May 20.

Peter Peterson Co., Des Plaines, Ill., Own Forces, $675,000, 50 HOMES, DES PLAINES, ILL.

▲ D. L. Dise, Inc., 7210 Ogden Ave., Riverside, Ill., Own Forces, $1,200,000, 75 HOMES, LAGRANGE, ILL.

▲ Kleistad Eng. Co., 4444 W. Montrose St., Chicago, Ill., CA, $1,000,000, design and construct PRINTING FACTORY, at Touhy & C. N. W. R. R., LINCOLNWOOD, ILL. Magill Weinsneimer Co., 1322 S. Wabash St., Chicago, Ill. Awarded May 19.

Interstate General Contractors, 5621 Glenwood St., Chicago, Ill., CA, $760,500, Lockport Twp. HIGH SCHOOL, LOCKPORT, ILL. School District 205, Jefferson and 12 Sts., Lockport, Ill. Bids Mar. 17. CD 4/28, under LB.

▲ Sloan Homes, Inc., 40 S. Seymour St., Mundelein, Ill., Own Forces, $1,600,000, 100 HOMES, MUNDELEIN, ILL.

▲ Highland Shore, Inc., 5532 W. Division St., Northfield, Ill. Own Forces, $3,250,000, 200 HOMES, NORTHFIELD, ILL.

McGough Brothers, 4327 N. North Ave., Wauwatosa, Wis., CA, $575,000, 2 story, bsmnt. and 1 story SCHOOL-AUDITORIUM BLDG., WAUWATOSA, WIS. St. Bernard's Catholic Congregation, 7440 Harwood Ave., Milwaukee 13, Wis. CD 4/15.

† A. B. Priegel Co., 2349 S. Austin St., Milwaukee, Wis., LB, $759,332, Item I, LAUNDRY BLDG. 102, Veterans Administration Center, WOOD, WIS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids May 25. CD 4/5.

Campbell Constr. Co., 9301 Michigan Ave., Detroit, Mich. CA $165,750, masonry WAREHOUSE addn., DETROIT, MICH. Shefman Foundation, 5718 Russell St., Detroit 11, Mich.

▲ Nelson Homes, 17128 Wyoming St., Detroit 21, Mich. Owner Builds. $2,000,000. 220 one and one half story, brick, frame single HOUSES, Dembs Dr. and 12 Mile Rd., ROSEVILLE, MICH.

▲ Thiele Constr. Co., 24145 Little Mack St., St. Clair Shores, Mich. Owner Builds. $3,500,000. 200 single HOUSES, St. Clair Manor Development, ST. CLAIR SHORES, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Minnesota—BA 6/15—U. S. Eng., 1217 U. S. P.O. and Custom House, St. Paul, Zone 1, channel clearing, snagging Clearwater River, near Plummer, CIV-ENG-21-018-54-55. CD 5/21.

Neb., Omaha—BA 6/15—Bd. of Tr. Sanitary & Imprvt. Dist. Douglas Co., Omaha, sewers and sewage plant for West Side High School, in suburban area west of here. $298,000. Henningson, Durham & Richardson, 2962 Harney St., engrs.

† N. M., Clovis—SHOP and FUEL STORAGE—BA About 6/18—U. S. Eng., P.O. Box 1538, 2108 Central Ave. S.E., Albuquerque, 60x115 ft. with 15x96 ft. mezzanine floor, concrete frame, masonry panel constr. motor repair shop; minor changes to existing jet fuel storage facilities, approx. 75 ft. 4 in. pipe and two 4 in. gate valves, Clovis Air Force Base, Serial

† N. M., Las Cruces—BA About 6/21—U. S. Eng., P.O. Box 1538, Albuquerque, addnl. water supply facilities, Well No. 16 and storage tank, White Sands Proving Ground. Serial No. ENG-29-005-54-129. CD 8/28/51.

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LOCKTITE
lead holder has
PERFECT BALANCE

Perfect b-a-l-a-n-c-e is just as important in a Lead Holder as in a ballet dancer.

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Add these 3 notable features:

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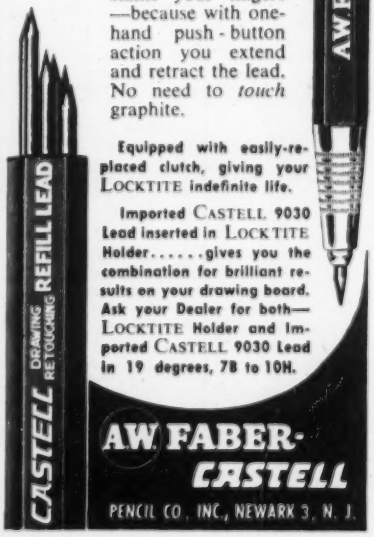

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Imported CASTELL 9030 Lead inserted in LOCKTITE Holder.....gives you the combination for brilliant results on your drawing board. Ask your Dealer for both—LOCKTITE Holder and Imported CASTELL 9030 Lead in 19 degrees, 7B to 10H.

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PENCIL CO., INC., NEWARK 3, N. J.

† **Ia., Sioux City**—BA 6/24—U. S. Eng., 1709 Jackson St., Omaha, Neb., hydrant refueling system and bulk storage facilities, Sioux City Air Force Base, Inv. 25-066-54-99. CD 2/2/53.

† **N. M., Roswell**—ALERT HANGAR—BA About 6/25—U. S. Eng., P.O. Box 1538, Albuquerque, one 69 x 303 ft. steel metal sliding with built-up roof over insulation over steel roof decking alert hangar, utilities, incl. water sewer, gas and electrical work, approx. 90 sq. yd. double bit. surf. for car parking, Walker Air Force Base, Serial No ENG-29-005-54-114. CD 8/28/51.

† **Tex., Texarkana**—CLEAR WELL BOILER PLANT—BA 6/22—U. S. Eng., Box 61, Tulsa, Okla., Contr. I, 600,000 gal. rein.-con. clear well with piping to existing treatment plant, incl. 20,350 lin. ft. 16 in. water line, $190,000; Contr. 2, boiler plant expansion and imprvs., $90,000, for Red River Arsenal, Inv. No. ENG-34-066-54-86. George L. Dahl, 2101 N. St. Paul St., Dallas, engr.-archt. CD 6/11/52, under Public Buildings.

† **N. M., Albuquerque**—LIGHTING—BA About 6/25—U. S. Eng., P.O Box 1538, 2108 Central Ave. S.E., Albuquerque, airfield lighting, incl. installation cables, fixtures, transformers, switchgear, etc. to install airfield lighting on 13,000 ft. runway, cables installed under runway and taxiways will be pulled through conduit installed under another contract, Kirtland Air Force Base, Serial No. ENG-29-005-54-124.

BIDS ASKED—BUILDINGS

Kan., Wichita—SUB-STATION—BA 6/17—Boeing Airplane Co., Plant No. 11, Personnel Bldg., Wichita, constr. Sub-station No. 2, under special facilities Contr. W33-038-AC-21378 AMC Proj. No. 28 B-33, Govt. Aircraft Assembly Plant No. 13. Plans deposit $15. Wilson & Co., 2930 Geo. Washington Blvd., P.O. Box 3005, Southeast Station, Wichita, engrs.

Tex., Tuloso-Midway—SCHOOL—BA 6/22—Tuloso-Midway Independent School Dist., Wallace C. Hill, supt., Staples St., Corpus Christi, school, $315,000. McCord & Lorenz, 311 Bevly Bldg., Corpus Christi, archts. CD 2/19.

Tex., Amarillo — OFFICE — BA 7/1 — Western National Life Insurance Co., 10 and Taylor Sts., 2 story, bsmnt office. $450,000. Emmett F. & James F. Rittenberry, Fisk M & P Bldg., archts. CD 5/28.

Ark., Little Rock — SCHOOL — BA 8/4 — Little Rock School Bd., 8 and Louisiana Sts., Junior High School near 32 and McKinley Sts., $792,000.

▲ **Tex., Houston**—MEDICAL—Bids Asked—Morris Nadelman & Assocs., 5305 Blythewood St., 17 story medical bldg. (named, Medical Tower), $3,500,000; 600-auto ramp type parking garage, $500,000. Golemon & Rolfe, 5100 Travis St., archts. CD 6/19/53.

SOON LETS CONTRACT—BUILDINGS

▲ **Ark., Little Rock**—HOSPITAL—Arkansas Baptist Hospital, 1700 W. 13 St. soon lets contract hospital addn. $1,500,000. Extended date. CD 4/15.

▲ **Ark., Little Rock**—OFFICE—BA 6/17—National Old Line Insurance Co., c/o Yandell Johnson, archt., 113 E. 9 St., office bldg. $1,000,000. CD 9/3.

▲ **Mo., Kansas City**—OFFICE—Skelly Oil Co., 605 W. 47 St., soon lets contract 5 story, 80,000 sq. ft. floor space offices, 30,000 sq. ft. parking. $1,000,000. Edward Tanner & Assoc., 310 Ward Parkway, Kansas City, Mo., archts. CD 1/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Orfei & Mariani, 1156 Homer St., St. Paul, Minn. LB, $624,523. furnish, install 101,000 lin. ft. 9 in. V.S.P., RICHFIELD, MINN. Village, O. H. Haugen, clk., Richfield, Minn. Bids May 24. CD 4/21.

List & Weatherly Constr. Co., 231 W. 47 St., Kansas City, Mo. LB $781,737. exten. north approach to existing Chestnut Ave. viaduct, KANSAS CITY, MO. City, Dpt. P. Wks., City Hall, Kansas City, Mo. Bids May 21. CD 5/10.

Davidson-Steele Inc., Southwestern House, Ft. Smith, Ark., CA, $611,884 treatment plant and lift stations, HOT SPRINGS, ARK. City, City Hall, Hot Springs, Ark. Bids Apr. 27. CD 4/1.

SOUTH DAKOTA—State Hy. Comn., Pierre,

Bonesteel & Hyde, Inc., Rapid City, S. D., LB $98,586, one 117 ft. cont. concrete bridge, one 97 ft. and two 133 ft. composite I-beam viaducts, FAP 179 and Spur to Gary, Deuel Co.;

Rand Constr. Co., Rapid City, S. D., LB $189,737, one 231 ft. continuous I-beam viaduct, one 465 ft. composite I-beam viaduct, S 248 (5), Jackson and Washabaugh Counties. Bids May 25. CD 5/13.

SOUTH DAKOTA—State Hy. Comn., Pierre,

J. L. Healy Constr. Co., 301 Western Surety Bldg., Sioux Falls, S. D., LB $129,363, bit. surf. (maint. retread type) 18.015 mi., FAP 58, Codington Co.; LB $119,407, base course, bit. surf. 7.976 mi. FAP 102 (St. Wk.), Lincoln Co.;

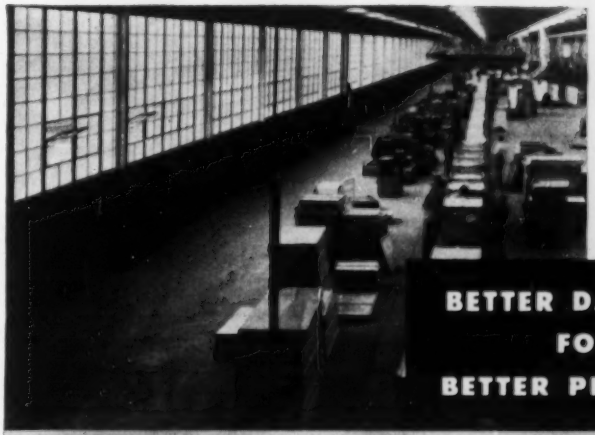
Sweetman Constr. Co., Sioux Falls, S. D., LB $253,433, grading, etc. 16.544 mi., FAP 179 and Spur to Gary (St. Wk.), Deuel Co.;

Megarry Bros., St. Cloud, Minn., LB $97,378, bit. surf. (maint. retread type) 14.547 mi. FAP's 55 and 205, Deuel Co.;

C. H. Lien Constr. Co., Rapid City, S. D., LB $115,529, bit. surf. (maint. retread type) 16.174 mi. FAP 83, NRM's 191 and 188, Kingsbury Co.;

G. H. Lindekugel & Sons, Mitchell, S. D., LB $195,599, base course, bit. surf., 10.975 mi. F 199 (11), Clark and Coddington Counties;

W. H. Noel Co., Jamestown, N. D., LB $119,497, base course, bit. surf. 2.337 mi. F 267 (9) (St. Wk.), Corson Co.; LB $175,110, bit. surf. (maint. retread type), 23.586 mi., FAP's 19, 18 and NRM 201,



Deepfreeze Appliances, Division of Motor Products Corporation.
Glazing Contractor: Waukegan Glass Co., Waukegan, Illinois

BETTER DAYLIGHT FOR BETTER PRODUCTS

New Deepfreeze Plant Installs Coolite Glass To Eliminate Harmful Effects of "Raw Sunlight"

Deepfreeze, famous manufacturer of modern appliances for modern living, recognizes the importance of proper factory lighting to boost efficiency and employe morale. "Raw Sunlight" contains many factors that adversely affect your workers and their output. Excess solar heat makes interiors uncomfortable ... and blinding glare makes seeing tasks difficult and tiring. This new Deepfreeze plant is glazed with 8000 square feet of Mississippi Coolite, Heat Absorbing, Glare Reducing Glass, which effectively controls the quality of light flooding work areas ... banishes objectionable glare ... cuts costly eye fatigue that results in seeing errors.

The Coolite in this modern plant is glare reduced on both sides, affording a maximum diffusion of light with a minimum of glare. Workers see better... feel better... work better in better light by Coolite.

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Hyde and Hand Counties; LB $101,062, base course, bit. surf. 9.071 mi. FAP's 101 and 131 (pt.) (St. Wk.), Campbell Co.; LB $224,961, base course, bit. surf. 16.052 mi. S 236 (6), Perkins Co.;

Peter Kiewit Sons' Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., LB $109,198, conc. bit., etc. 0.695 mi., U 266 (6), Brown Co. Bids May 25. CD 5/13.

† **Dondlinger & Sons**, 1206 E. Lincoln St., Witchita, Kan. LB $611,746. Group L bldgs., at Wichita Air Force Base, Inv. 23-028-54-67, WICHITA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids May 21. CD 4/28.

TEXAS—State Hy. Comn., Austin,
cancelled bids to have been opened June 15, grading, structures, base, surf., 7.649 mi. Hy. FM 2059 and 2058, Proj. V 1490-3-1, etc., Hidalgo Co. CD 5/21.

TEXAS—State Hy. Comn., Austin,
cancelled bids to have been opened June 16, grading, structures, base, surf, 4.785 mi. Hy. FM 2063, Proj. S 1958 (1), Jack Co. CD 5/21.

▲ **TEXAS**—State Hy. Comn., Austin,

Cage Brothers, 6559 San Pedro St., San Antonia, Tex., CA, $508,423, 10.888 mi. Hy. US 80, Proj. FI-235 (2) and FGI 235 (21) Howard Co.;

J. Q. Moorman & Son, P.O. Box 270, Belton, Tex., CA, $801,808, 2.405 mi. Proj. I-644 (11), Hy. US 81, Bell Co. Bids May 18, awarded May 25. CD 5/24, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,

Flenniken Constr. Co., P.O. Box 634, Shreveport, La., CA, $535,601. 12.887 mi. Hy. SH 105, Proj. S 925 (2) Hardin Co. CA $856,851, 8.289 mi. Hy. U.S. 67, Proj. FI 826 (12), Rockwall Co.;

J. R. Fanning, P.O. Box 1278, Lubbock, Tex., CA, $519,524, 15.068 mi. Hy. U.S. 380, Shackelford Co.;

R. W. McKiney, P.O. Box 190, Nacogdoches, Tex., CA $918,276, 12.084 mi. Hy. SH 289, Proj. S 51 (1), etc., Collin and Dallas Counties;

L. W. Pelphrey Co., P.O. Box 1166, Gladewater, Tex., CA, $648,852, 6.766 mi. Hy. U.S. 80, Proj. F 21 (5), Gregg Co.;

Heidenfels Bros., P.O. Box 1917, Corpus Christi, Tex. CA, $936,947, 17.042 mi. Hy. U.S. 77, Proj. F 1025 (1), Victoria Co. Grand total $4,416,051. Bids May 19, awarded May 25. CD 5/25, under LB.

† **Lufkin Constr. Co.**, Lufkin, Tex., LB, $744,736, est. $754,968, refueling hydrant sys., Abilene Air Force Base, ENG-41-443-54-64, ABILENE, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids May 27. CD 5/5.

† **H. B. Zachry Co., Constr. Div.**, Box 2570, San Antonio, Tex., CA $1,950,968, airfield pavement, Holloman Air Force Base, Serial No. ENG-29-005-54-90, ALAMOGORDO, N. M. U. S. Eng., P. O. Box 1538, 2108 Central Ave. S. E. Albuquerque, N. M. Bids May 21. CD 4/29.

BUILDINGS

LOW BIDS AND CONTRACTS

Lenci, Lenci & Englund, Virginia, Minn. CA $715,947. 3 story, 116x213 ft. INFIRMARY on grounds of St. Mary's Hospital, DULUTH, MINN. St. Louis Co., F. W. Johnson, purch. agt., Court House, Duluth, Minn. CD 5/18, under LB.

Sharp Bros. Constr. Co., 1014 E. 19 St., Kansas City, Mo. LB $629,840. general contract Linwood Elementary SCHOOL, KANSAS CITY, MO. Bd. Educ., Library Bldg., Kansas City, Mo. Bids May 20. CD 4/28.

The Baldwin Co., Wallace Bldg., Little Rock, Ark., CA, $350,000, 1 story, 21,569 sq. ft. WAREHOUSE, METER HOUSE and OFFICE, and 1 story truck GARAGE, LITTLE ROCK, ARK. Arkansas-Louisiana Gas Co., 300 W. Capitol Ave., Little Rock, Ark. Wittenberg, Delony & Davidson, Pyramid Life Bldg., Little Rock, Ark., archts. Awarded May 27. CD 9/15.

Parsons Constr. Co., 2512 Deer Park Blvd., Omaha, Neb. CA $500,000. 4 story seed processing PLANT, FREMONT, NEB. Associated Seed Growers, Inc., Fremont, Neb. CD 3/23.

Gilmore Constr. Co., 1207 N. 11 St., Omaha, Neb., LB $540,434, general constr. LIBRARY, OMAHA, NEB. University of Omaha, 60 and Dodge Sts., Omaha, Neb. Bids May 28. CD 5/12.

Shelby Constr. Co., 2326 N. Beckley St., Dallas, Tex. Owner Builds. $332,250. 25 DWELLINGS, in Oak Cliff, DALLAS, TEX. CD 5/12.

W. F. Foster, Denison, Tex., Own Forces. $335,000, 35 bldgs. HOUSING, DENISON, TEX. CD 5/20.

Lingo-Leeper Lumber Co., Denison, Tex., Owner Builds. $325,000. HOUSING. DENISON, TEX. CD 5/20.

Freeway Development Co., Inc., 5519 Lawndale St., Houston, Tex., Own Forces. $365,000. 36 frame DWELLINGS, concrete slab fdn.; $320,500, 31 frame, brick trim DWELLINGS, concrete slab fdn., near HOUSTON, TEX. CD 5/17.

Howard G. Singer & Assocs., 2017 W. Gray St., Houston, Tex., Own Forces. $340,000. 17 brick DWELLINGS, concrete slab fdn.; $365,000, 22 frame, brick, stone DWELLINGS, concrete slab fdn., HOUSTON, TEX.

▲ **Wilson Brown Co.**, 2711 Inwood St., Dallas, Tex. Own Forces. $327,185, 32 frame DWELLINGS, concrete slab fdn.; $338,175, 41 frame type DWELLINGS, concrete slab fdn.; $344,500, 36 frame DWELLINGS, concrete slab fdn., IRVING, TEX. Grand total $1,009,860. CD 5/12.

▲† **H. B. Zachry Co., Constr. Div.**, Box 2570, San Antonio, Tex., CA Approx. $2,500,000. const. first sect. of Jato PLANT, for U. S. Air Force, MCGREGOR, TEX. Phillips Petroleum Co., c/o E. F. Kindsvater, McGregor, Tex.

▲† **H. R. Henderson & Co. and A & H Inc.**, Box 313, Marshall, Tex., LB $2,480,479, constr. Group 2, 41 masonry type BUILDINGS, appurtenances, utilities, etc., Longhorn Ordnance Works, Plant 3, Inv. No. ENG-34-066-54-71, MARSHALL, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids May 20. CD 4/27.

▲ **H. L. Olsen Co.**, 419 Pierce St., Houston, Tex., CA Approx. $1,785,000, natural gasoline PLANT; CA $115,000, WAREHOUSING or STORAGE, ODESSA, TEX. Texas Gulf Production Co., Odessa, Tex. C. F. Braun & Co., 1000 S. Fremont St., Alhambra, Los Angeles, Calif., engrs. CD 5/18.

Blagdon Manning & Assocs., 4332 Beverly St., Dallas, Tex. Own Forces. $365,500 (a) 39 frame DWELLINGS, concrete slab fdn., RICHARDSON, TEX. CD 5/12.

Highland Addition No. 3, Richardson, Tex., Own Forces. Approx. $300,000. 25 frame DWELLINGS, concrete slab fdn.; $327,500, 27 frame, brick trim DWELLINGS, concrete slab fdn., RICHARDSON, TEX. CD 5/12.

Orts Constr. Co., Rittiman Rd., San Antonio, Tex. Own Forces. $369,185, (b) 33 frame DWELLINGS, concrete slab fdn.; $333,875, (c) 28 frame, brick trim DWELLINGS, concrete slab fdn., SAN ANTONIO, TEX. CD 5/7.

▲† **L. C. Anderson Co.**, 3040 Hancock St., San Diego, Calif., CA $421,000, Base Proposal No. 2;

Wilson & Hockinson, Albuquerque, N. M., CA $271,678, Base Proposal No. 3;

Underwood Testman Co., Albuquerque, N. M., CA $327,356, Base Proposal No. 4;

George Rutherford, 915 E. Hazeldine Ave., Albuquerque, N. M., CA $627,757, Base Proposal No. 5 for Navajo Reservation SCHOOL FACILITIES at Crystal, Shiprock and Standing Rock, NEW MEXICO, Greasewood, Kaibeto, Nazlini, Pinon, Steamboat and Wide Ruins, ARIZONA. Grand total $1,647,791. Bureau Indian Affairs, Dpt. Interior, 19 and C Sts., N. W. Wash., D. C. Bids May 25. CD 4/13.

Otha A. Grimes, Kennedy Bldg., Tulsa, Okla., Own Forces. $875,000, gasoline PLANT, LOVINGTON, N. M.

▲ **Robert E. McKee Co.**, 1918 Texas St., El Paso, Tex. CA $3,369,000, est. $3,212,249, Phase II, structural steel, roman brick, etc. PENITENTIARY BLDGS. and facilities, SANTA FE, N. M. Bd. Comrs. Penitentiary of New Mexico, Capitol Bldg., Santa Fe, N. M. Bids May 25. CD 5/7.

FAR WEST

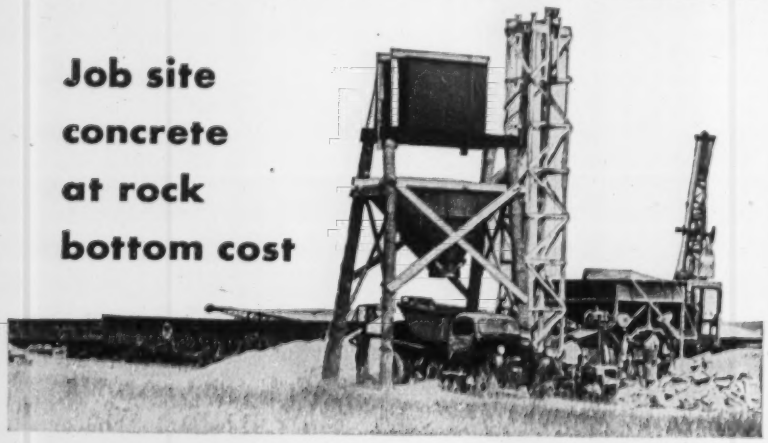
BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—BA 6/17—U. S. Eng., 4735 E. Marginal Way, Seattle. Zone 4, maintenance dredging of Swinomish Slough, La Conner, CIVENG-45-108-54-47.

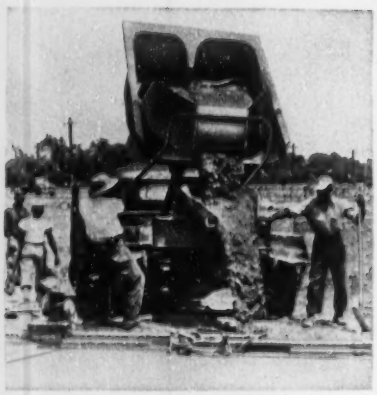
▲† **Calif., Muroc** — HANGAR — BA 6/24 — U. S. Eng., 751 S. Figueroa St., Los Angeles, modification hangar and maintenance shop at Edwards Air Force Base, ENG-04-354-54-103, $6,995,000. Albert C. Martin & Assocs., 333 S. Beaudry St., Los Angeles, archts. CD 1/27.

† **Oregon**—BA 6/24—U. S. Eng., 628 Pittock Block, Portland, Zone 5, lifting beams and wire rope slings

(Continued on page 94)



Job site concrete at rock bottom cost



The mixing plant you see above is not fancy. But it produced 100 yards of *top quality* concrete a day.

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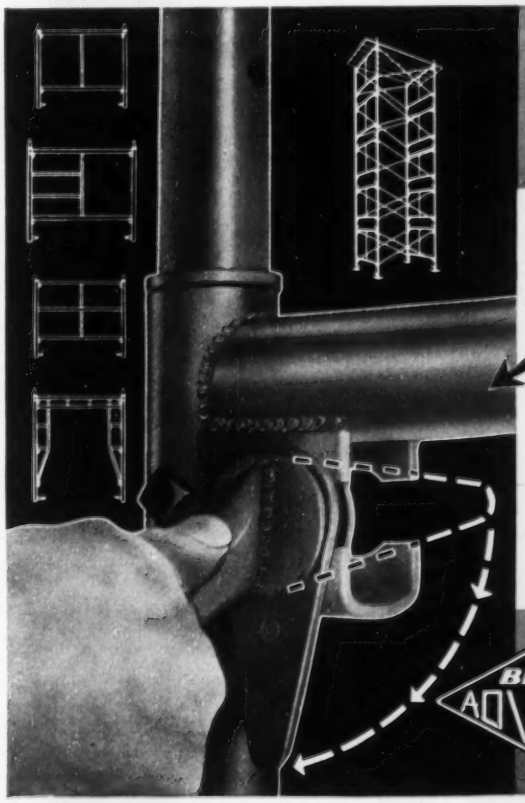

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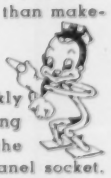

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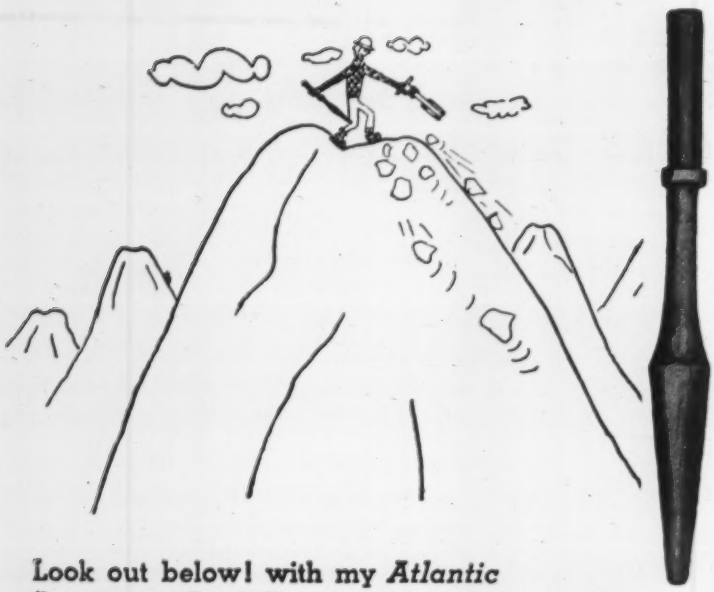

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(Continued from page 92)

for powerhouse intake gates at The Dalles Dam, Serial No. CIVENG-35-026-54-154. CD 12/23.

BIDS ASKED—BUILDINGS

Wash., Richland — EDUCATION — BA 6/22 — Central United Protestant Church, 1211 Stevens Dr., 2 story frame educational bldg., first unit of $1,000,000 building program. J. W. and J. H. Whitney, Larson Bldg., Yakima, archts. Bids 5/11 rejected, LB $150,023.

▲ **Calif., Los Angeles**—CLASSROOM, etc.—BA 7/8—University of California, 405 Hilgard Ave., general classroom and office bldg., $1,750,000. Plans deposit $300. Austin, Field & Fry, 2311 W. 3 St., archts. CD 7/21/52.

SOON LETS CONTRACT—BUILDINGS

▲ **Idaho, Boise**—OFFICE—First Security Corp., 119 N. 9 St., soon lets contract office. Over $1,000,000. Hummel, Hummel & Jones, 1324 Idaho St., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,
Wallace & Wallace, Box 470, Phoenix, Ariz., CA, $657,000, 2¼ mi. Corded Jct.-Bridgeport Section Black Canyon Rd., Yavapai Co. Bids May 21, awarded May 24. CD 5/13.

▲ **WASHINGTON**—State Hy. Comn., Olympia,
Peter Kiewit Sons Co., Longview, Wash., CA, $1,065,681, paving 6.76 mi. Primary State Highway No. 1, Lewis Co. Bids May 25. CD 5/11.

WASHINGTON—State Hy. Comn., Olympia,
cancelled bids to have been opened May 25, draining, grading, surf. 3.67 mi. Creston-Miles Road, Lincoln Co. CD 5/1.

WASHINGTON—State Hy. Comn., Olympia,
D-H Paving Co., 6808 Highway 99, Vancouver, Wash., CA, $389,047 10.32 mi. Primary State Hy. 12, South Bend to Palix River, Pacific Co.;
Curtis Constr. Co., P.O. Box 106, Spokane, Wash., CA, $71,350 15.76 mi. McDonald Rd. and other county roads, Grant Co.;
Strong & Macdonald, 4045 Ruston Way, Tacoma, Wash. CA, $349,640, 11.16 mi. Secondary State Hy. 5-K, Lewis Co. Grand total $810,037. Bids May 25, awarded May 26. CD 5/11.

▲† **Sellen Constr. Co.,** 228 9 Ave., N. Seattle, Wash., LB $1,581,168, fuel tank farm at Boeing Field, SEATTLE, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash. Bids May 26. CD 5/17.

† **Ward & Greene Contractors and Thompson & Georgeson,** 3256 N. E. Broadway, Portland, Ore., LB $505,584, est. $494,545, military proj. on Mount Hebo, with bldgs., roads, walks, parking areas, cement concrete hardstand, utilities, gas dispensing facility, ENG-45-108-54-163, TILLAMOOK, ORE. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids May 21. CD 4/28.

Max Milosevich, 2405 Roanoke Rd., San Marino, Calif., LB, $149,566, est. $152,950, sanitary sewers in Sunny Slope Dr., C.I. 1458, San Marino;
Bob Bosnyak, 3014 Worthen Ave., Los Angeles, Calif., LB, $88,444, est. $103,200, sanitary sewers in Arrington Ave., C.I. 1605, Rivera, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids May 21. CD 4/2.

Mike Miller Co., 873 N. Bunker Hill, Los Angeles, Calif., LB, $969,190, 12,000 ft. 60 in. water pipe Hollywood Outlet Line, Unit II, LOS ANGELES, CALIF. Los Angeles Dpt. of Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids May 27. CD 5/18.

▲ **Pittsburgh-Des Moines Steel Co.,** 3436 Neville Island, Pittsburgh, Pa., CA, $4,000,000, design and construct wind tunnel for airplane testing at Los Angeles Airport, LOS ANGELES, CALIF. North American Aviation, Inc., International Airport, Los Angeles 45, Calif.

C & H Cement Constr. Co., 5812 N. Kaufman Ave., Temple City, Calif., LB, $203,178, est. $200,000, bathhouse and swimming pool at Will Rogers Park, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids May 21. CD 4/29.

† **Dimmitt & Taylor,** 128 W. Pomona Ave., Monrovia, Calif., LB, $571,735, Bull Creek Flood Channel, Los Angeles Co., SAN FERNANDO, CALIF. Soil Conservation Service, 2033 4 St., San Fernando, Calif. Bids May 21. CD 5/7.

BUILDINGS

LOW BIDS AND CONTRACTS

P. J. Young & Sons, E. 1211 Columbia, Spokane, Wash., CA, $300,000, 125x160 ft. grocery STORE with 70,000 sq. ft. parking space, SEATTLE, WASH. Albert Balch Shopping Centers, 8050 35 Ave. N.E., Seattle, Wash.

Ostruske-Murphy, Inc., 2907 A St., Tacoma, Wash., LB, $564,000, general contract 68,000 sq. ft., steel frame Baker Junior High SCHOOL, TACOMA, WASH. School District No. 10, 601 S. 10 St., Tacoma, Wash. Bids May 26. CD 5/12.

Cawdrey & Vemo, 3601 Fremont Ave., Seattle 3, Wash., CA, $471,286, 39,000 sq. ft., frame Parochial SCHOOL for St. Joseph's Parish, WENATCHEE, WASH. Most Rev. J. P. Dougherty, bishop of Yakima, c/o St. Joseph's Parish, Wenatchee, Wash. Bids Jan. 5. CD 4/10, under LB.

▲ **Marco, Inc.,** 2080 Beverly Blvd., Los Angeles, Calif., CA, $1,126,100, 170 frame, stucco DWELLINGS, Luxford Rd., Newburgh St., etc., AZUSA, CALIF. Westcov Homes, Inc., 2080 Beverly Blvd., Los Angeles, Calif. Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, Calif., archt.

C. L. Peck, 816 W. 5 St., Los Angeles, Calif., CA $900,000, reinforced STORE and OFFICE BLDG., BEVERLY HILLS, CALIF. Brighton Builders, Inc., 321 S. Beverly Dr., Beverly Hills, Calif. Welton Becket & Assoc., 5657 Wilshire Blvd., Los Angeles, Calif., archts.

Donald & McKee, 414 E. Central St., Redlands, Calif., CA, $590,800, 3 story, 40,000 sq. ft., rein.-con. girls' DORMITORY, REDLANDS, CALIF. University of Redlands, Redlands, Calif. Bids Apr. 15. CD 4/27, under LB.

Wm. C. Crowell Co., 170 E. California St., Pasadena, Calif., LB, $447,500, 35,000 sq. ft. Williams SCHOOL, GLENDORA, CALIF. Glendora School District, 440 W. Foothill Blvd., Glendora, Calif. Bids May 21.

Preston Constr. Co., 6111 Pacific Blvd., Huntington Park, Calif., CA, $400,000, concrete frozen food WAREHOUSE, VERNON, CALIF. Safeway Stores, 6111 Pacific Blvd., Huntington Park, Calif.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Alta., Edmonton** — FEDERAL PUBLIC BLDG. — BA 6/16—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., 11 story, bsmnt., 150x285 ft., steel, brick public bldg., 107 St. and 98 Ave., Over $6,000,000. Plans deposit $500. Morrison, Hershfield, Milliman & Huggins, 96 Bloor St. West, Toronto, Ont., engrs. E. A. Gardner, c/o owner, ch. archt. G. H. MacDonald, Tegler Bldg., archt. CD 8/2/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ALBERTA**—Alberta Government, Parliament Bldgs., Edmonton.

Mannix-O'Sullivan Paving Co., Calgary, Alta. CA, $620,727, 50 mi. stab grav. base and asph. hot mix surf. Highway No. 2 from Berwyn to Fairview, Awarded May 18;

Cleve Constr. Co. Ltd., Lloydminster, Sask., CA $447,020, 26 mi. highway in Drayton Valley. Awarded May 19. CD 12/1/43.

Bond Constr. Co., Ltd., 310 Burns Bldg., Calgary, Alta., CA, $121,139, 45 mi. distri. sys. in St. Mary—Milk River Irrigation Development, southwest of Medicine Hat, ALBERTA, Province of Alberta, Terrace Bldg. Edmonton, Alta. Bids May 10, awarded May 19. CD 4/30.

City, Civic Block, Edmonton, Alta., Own Forces, $100,000 bridge on Stony Plain Road between 130 and 131 Sts. as an underpass for Groat Road, EDMONTON, ALTA. Bids May 14, awarded May 18. CD 5/6.

Municipality, City Hall, Winnipeg, Man., Own Forces. $249,000, water mains in Renfrew St., etc., WINNIPEG, MAN. W. D. Hurst, City Hall, Winnipeg, Man., city engr. CD 1/20.

J. P. Porter & Sons Ltd., 1010 St. Catherine St. W., Montreal, Que., CA, $408,000. dredging at Royal Canadian Navy Base, SYDNEY, N. S. Defense Construction (1951) Ltd. 56 Lyon St., Ottawa, Ont. Bids Apr. 28, awarded May 23. CD 4/12.

Kenney Constr. Co. Ltd., 5 Glebe Rd., Yarmouth, N. S. CA $612,000, ferry terminal, YARMOUTH, N. S. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids May 19. CD 4/30.

James S. Watt, Little River North, Que., LB, $197,407, fishing harbour, L'ANSE-A-VALLEAU, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids May 19. CD 5/3.

Olynyk Constr. Ltd., Regina, Sask., CA, $129,515, domestic sewers, REGINA, SASK. Municipality, City Hall, Regina, Sask. D. A. R. McCannell, City Hall, Regina, Sask., city engr. CD 4/27/53.

BUILDINGS

LOW BIDS AND CONTRACTS

Bennett & White Alberta Ltd., 1120 9 Ave. W., Calgary, Alta., CA $390,000, L-shaped, rein.-con. 250x60 ft. in one wing and 200x40 ft. in other wing, petroleum Engineering LABORATORY, CALGARY, ALTA. Imperial Oil Ltd., Calgary, Alta. Stevenson & Dewar, 340 7 Ave. W., Calgary, Alta., archts. Awarded May 14.

▲ **Alberta Department Public Works**, Edmonton, Alta., Own Forces, $1,100,000, 3 story, bsmnt., concrete, U-shaped, HIGHWAY BLDG., EDMONTON, ALTA. A. Frame, c/o owner, engr. CD 3/10.

Poole Constr. Co. Ltd., 10503 109 St., Edmonton, Alta., CA $900,000, 3 story, 60x336 ft., steel, brick ADMISSION BLDG. at Mental Hospital, OLIVER, ALTA. Alberta Government, Parliament Bldgs. Edmonton, Alta. Awarded May 21. CD 3/19/53.

▲ **Johnson-Crooks Constr. Corp.**, 1208 Equitable Bldg., Portland 4, Ore., U.S.A., CA $3,500,000, 300 HOMES, KITIMAT, B. C. Aluminum Co. of Canada Ltd., Sun Life Bldg., Montreal, Que. CD 12/23/52.

Peter Koop, East Kildonan, Man., CA, $351,000. concrete, brick SCHOOL, Melrose Ave., EAST KILDONAN, MAN. Municipality, East Kildonan, Man. Prain & Ward, Winnipeg, Man., archts. CD 5/20/49.

▲ **Foundation Maritime Ltd.**, 135 Lower Water St., Halifax, N. S., CA, $6,000,000. GYPSUM QUARRYING DEVELOPMENT on Shubernacadie River north of Halifax, incl. warehouse, offices, railway siding, repair shops, loading and pumping sites, pier at Dartmouth, DUTCH SETTLEMENT, N. S. National Gypsum Co. of Canada Ltd., 101 Cadoingen Rd., Halifax, N. S. General Engineering Co. Ltd., 1205 Roselawn Ave., Toronto, Ont., engrs. Awarded May 26.

Paramount Constr. Co., Ltd., 2 Manor Haven, Toronto, Ont., CA, $160,000, 1 story, 20,000 sq. ft., steel frame, brick, concrete block FACTORY and WARE-

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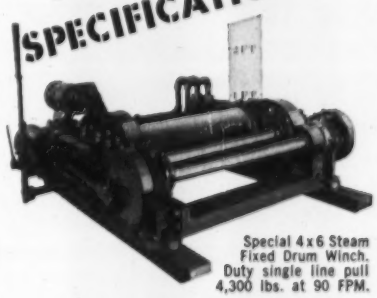

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HOUSE, Queen Elizabeth Way, near Kipling Ave., TORONTO, ONT. Parke Davis & Co. Ltd., 186 Spadina Ave. Toronto, Ont. Harry B. Kohn, 24 Colborne St., Toronto, archt. Awarded May 22. CD 5/27.

▲ **Pigott Constr. Co. Ltd.**, 1250 Bay St., Toronto, Ont., CA, $1,500,000, 800x200 ft. OFFICE and 75x150 ft. POWER PLANT, TANK BUILDING, WHITBY, ONT. Dunlop Tire & Rubber Goods Co. of Canada Ltd., 876 Queen St. E., Toronto, Ont. Bids May 13. CD 5/5.

Douglas Brenner Constr. Ltd., 5965 Monkland Ave., Montreal, Que., LB, $308,477, Ahuntsic SCHOOL addn., 10615 St. Lawrence Blvd., MONTREAL, QUE. Montreal Protestant Bd. School Comn., 3460 McTavish St., Montreal, Que. Bids May 20. CD 5/5.

▲ **Masse & Gauthier, Inc.**, 5504 Verdun Ave., Verdun, Que., Owner Builds, $3,000,000, 200 concrete, brick, stone, DWELLINGS, ST. JOACHIM DE CHATEAUGUAY, QUE. CD 5/28.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—CONTROL BLDG., etc.— 6/2:—Dpt. Commerce CAA, Box 440, Anchorage, extending control bldgs. and erecting VHF/UHF antenna, Moses Point and Unalakleet, Inv. 5-54-293.

† **ALASKA** — BA 6/22 — Alaska Road Comn., Dpt. Interior, Juneau, conversion and constr. bridges and grading 14.3 mi. Copper River Hy. Plans deposit $10. W. J. Niemi, c/o owner, ch. engr. CD 8/17/45.

† **Alaska**—INFIRMARY—BA 6/22—U. S. Eng., Anchorage, 1 story, 20,800 sq. ft. frame infirmary, rein.-con. fdn. with utilities, ENG-95-507-54-67. Eielson Air Force Base. Plans deposit $20. CD 11/25/52.

BIDS ASKED—BUILDINGS

† **Alaska, College**—FOOD SERVICE—BA 6/23—Alaska P. Wks., Dpt. Interior, Juneau, 1 story, bsmnt., 14,890 sq. ft. rein.-con. food service bldg. for University of Alaska, Proj. 50-A-149. $600,000. Plans deposit $25. Foos, Malcolm & Olsen, Juneau, archts. CD 10/23.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Montgomery Electric Co.**, 1001 S.W. 5 St., Portland, Ore., LB $148,881, electrical power service to serve receptacles at hardstands, Eielson Air Force Base, ENG-95-507-54-93, ALASKA. U.S. Eng., Anchorage, Alaska. Bids May 24. CD 4/14.

† **L. B. McKinney Co.**, 55 N.E. Farragut St., Portland, Ore., LB $329,572, est. $420,000. well, equipped pumphouse, 27,982 ft. 3- to 12-in. distr. and supply mains, Proj. Aaa 50-A-150, VALDEZ, ALASKA. Office of Territories, Alaska Dist. Branch, Dpt. Interior, Juneau, Alaska. Bids May 25. CD 4/22.

BUILDINGS

LOW BIDS AND CONTRACTS

† **J. H. Pomeroy**, 333 Montgomery St., San Francisco, Calif., LB $426,669, est. $307,882, two 2 story bsmnt., frame 8-family QUARTERS, total of 2,060 sq. ft. ENG-95-507-54-54, KENAI, ALASKA. U.S. Eng., Anchorage, Alaska. Bids May 26. CD 5/5.

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Northwest Shovel repowered with D-326 "Cat" equipped with S-N Model 2255-12/3054-7.

thanks to **S-N** reduction gears"

says the Valley Sand and Gravel Company, Scottsville, New York

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Proposed Projects

WATER SUPPLY

▲ **Ill., Jacksonville**—City, City Hall, voted $1,250,000 bonds, water pipe line to Illinois River. $3,000,000. Casler & Stapleton, 313 W. State St., consult. engrs. CD 2/15.

▲ **Mo., Kansas City**—City, Reed McKinley, dir. P. Wks. Dpt., City Hall, 24 in. water main from Clay Co. Waterworks to Midcontinent International Airport in Platte Co., near here, $2,500,000. CD 11/7/52.

▲ **Mo., North Kansas City**—City, 20 and Burlington Sts., water mains. $2,300,000.

SEWERS, WASTE DISPOSAL

Mass., Boston—State Metropolitan Dist. Comn., Sewer Div., 20 Somerset St., Boston, exten. sewer facilities, Natick, $550,000. CD 12/31/51.

Mich., Three Rivers—City, voted $625,000 bonds May 17, sewage disposal plant, treatment facilities. Ayres, Lewis, Norris & May, 500 Wolverine Bldg., Ann Arbor, consult. engrs. CD 4/1.

▲ **Miss., Columbus**—City, $1,600,000 bond election June 29, sewerage sys. and WW imprvs. CD 6/30/50 and 1/7/48.

▲ **O., Cleveland**—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, storm sewer outlet exten. to Lake Erie (1955-$100,000) (1956-$400,000); replacement of sewers (1955-$100,000) (1956-$100,000); flood relief sewers, incl. those designed to relieve flooding of neighborhood areas and for local flood relief projects, (1955-$1,500,000) (1956-$1,500,000); sewers for newly developed areas, allottments and sub-divisions (1955-$600,000) (1956-$400,000); intercepting sewers, inc. low level projects and other interceptors, (1955-$1,100,000) (1956-$100,000. George W. Hamlin, c/o owner, utilities engr. comr. CD 11/7/52.

O., Piqua—City, sewage treatment plant, secondary treatment. $750,000. Walter I. Barrows & Assocs., Reibold Bldg., Dayton, consult. engrs.

▲ **O., Solon**—Village, SOM Center Rd., Solon, c/o Cleveland, P.O., sewage disposal plant and connecting sewer mains. $2,000,000. John H. Puzenski, Standard Bldg., Cleveland, Zone 14, Cuyahoga Co. sanitary engr. Harold Scott, c/o owner, engr.

BRIDGES

▲ **Mississippi**—Harrison Co., Gulfport, preliminary surveys for causeway system off Mississippi Gulf Coast, $36,000,000, Hazelet & Erdal, 304 W. Liberty St., Louisville, Ky., consult. engrs.

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln, Sarpy Co.—overpass over railroad, near Fort Crook. $570,000. L. N. Ress, c/o owner, state engr.

▲ **O., Dayton**—City, Herbert Starick, mgr., City Hall, substitute overpass on Stanley Ave. above Baltimore & Ohio R. R. tracks for grade separation at Leo St., $1,725,000; underpass at Washington St. under proposed 6-lane expressway of U. S. 35. $1,659,000 if expressway not built, underpass for 3-lane street, est. $1,510,000, CD 11/27/53; overpass over New York Central, Baltimore & Ohio and Erie tracks, between Springfield St. and Monument Ave., over Monument Ave. just west of Sachs St., $1,790,000, CD 1/8/47. Vogt, Ivers & Seaman & Assocs., 2 National Bank Bldg., Cincinnati, O., consult. engrs.

▲ **O., Cleveland**—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall.
Commercial Rd. bridge over Baltimore & Ohio tracks, $250,000.
Eagle Ave. viaduct pier repair, $100,000, CD 12/10/43.
Jefferson Ave. bridge across Cuyahoga River, $1,500,000.
Kinsman Rd. bridge rehabilitation over Pennsylvania R.R. tracks, $550,000, CD 12/10/43.
Warner Road bridge over Pennsylvania R.R., $300,000.
E. 68th St. bridge over New York Central tracks from Grand Ave. to Kinsman Rd., $530,000.
W. 3 St. auto and pedestrian bridge over New York Central tracks to Municipal Stadium, $270,000.
W. 3 St. exten. roadway and ramp from Superior to Prospect Aves. $500,000. John C. Wernick, c/o owner, engr.

▲ **Ore., Portland**—Comrs., Multnomah Co., Court House, voted $12,000,000 bonds May 21, constr. Morrison St. Bridge across Willamette River. CD 2/2.

▲ **Ore., Portland**—Multnomah Co., Court House, east-side approaches for Hawthorne Bridge. $3,500,000. George Buck, c/o owner, engr.

STREETS AND ROADS

▲ O., Cleveland—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall, Chester Ave. exten. from E. 93 St. to foot of Cedar Hill, incl. new paving in University Circle area interchange from E. 107 St. to Cedar Hill, $750,000.
E. 21 St. opening from Euclid to Prospect Aves., $110,000.
E. 55 St. widening from Linton to Fleet Aves., $350,000.
E. 55 St. widening from Blanche to Hamm Aves., $125,000.
E. 79 St. exten. to Fleet Ave., $170,000.
W. 130 St. jog elimination from W. 131 St. to Lorain Ave. $90,000. A. J. Preusser, c/o owner, streets comr. CD 11/7/52.

▲ Ont., London—Middlesex Co., London, roads for 1954, $1,020,000.

Ont., Oshawa—City, City Hall, roads for 1954, $550,000.

▲ Ont., Scarborough—Scarborough Twp., roads for 1954, $1,250,000.

EARTHWORK, WATERWAYS

▲ O., Cleveland—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, enclosures of open streams and channel imprvs. (1955-$500,000) (1956-$500,000). George W. Hamlin, c/o owner, utilities eng. comr. CD 11/7/52.

LATIN AMERICA

▲ Colombia, Bogota—RADIO-TELEVISION CITY—Govt. of Colombia, Bogota, plans by Raymond & Rado, 101 Park Ave., New York 17, N. Y. radio and television city, $4,000,000.

PUBLIC BUILDINGS

▲ Calif., El Monte—SCHOOLS—El Monte School District, 200 E. Columbia St., voted $1,938,967 bonds, for schools. CD 2/24.

Calif., Glendale—SCHOOL—Glendale City School District, 411 E. Wilson St., plans by Wm. Mellema, 1633 Beverly Blvd., Los Angeles, and E. P. Eiden, 106 E. Wilson St., Woodrow Wilson School addns., $500,000. CD 6/27/45.

▲ Calif., Lodi—SCHOOLS—Lodi Union High School District, Lodi, voted $2,300,000 bonds, schools. CD 5/5/48.

Calif., Los Angeles—COUNTY ADMINISTRATION CENTER—Los Angeles Co., Hall of Record, plans by Raphael A. Nicolais & Assoc., 6239 Wilshire Blvd., county administration center in El Monte. $688,734.

Calif., Los Angeles—SCHOOLS—Los Angeles City School District, 1425 S. San Pedro St., plans by Roy W. Donley, 8810 Melrose Ave., Washington Irving Junior High School addns., $325,000; plans by John J. Landon, 1924 Hillhurst St., Los Angeles, Wilson High School addns., $560,000. CD 6/13/52.

Calif., Newport Beach—SCHOOLS—Newport Beach Elementary School District, Newport Beach, voted $900,000 bonds, schools. CD 3/17.

▲ Calif., Santa Barbara—HOSPITAL—Santa Barbara Co., Court House, plans by Soule & Mosher, 116 E. Sola St., 5 story rein-con. hospital. Donald F. Shugart, 35 N. Raymond St., Pasadena, consult engr. CD 7/27/50.

Colo., Durango—SCHOOLS—School District No. 9, La Plata Co., Durango, plans by Thomas & Sweet, 222 E. Bijou St., Colorado Springs, high school, Durango; plans by Atchison & Kloverstrom, 265 Josephine St., Denver, grade school at East Animas City and Park School addns. Total est. $927,000. CD 5/17/50.

Colo., Golden—SCHOOL—Jefferson County School District No. R-1, 1580 Yarrow St., Lakewood, plans by T. H. Buell & Co., archts. and engrs, 730 14 St., Denver. 1 and 2 story, brick, steel high school, 34 St. and Ford Ave. $769,000. CD 10/23/52.

▲ Conn., Hamden—SCHOOL—Town Bd. Educ., 2040 Dixwell Ave., plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, Junior High School. $1,500,000. Arthur Beaulier Assocs., 2348 Whitney Ave., structural engrs. CD 11/4.

▲ Conn., Stratford—SCHOOL—Town Dr. Chas. E. Chaffee, supt. Schools, Municipal Bldg., high school north end of town, $3,000,000; elementary school in Putney Area, $350,000.

Ill., Chicago—PARKING GARAGE—City, City Hall, plans by Frederick Stanton, 307 N. Michigan Ave., Zone 1, parking garage, Lawrence Ave. between Broadway and Winthrop St. $800,000. CD 2/21/50.

Kan., Abilene—COURTHOUSE—Dickinson Co., Abilene, plans by Cayton & Murray, Abilene, courthouse, $500,000.

▲ Mass., Hyannis—SCHOOL—Town of Barnstable, c/o Melvin C. Knight, supt. School, 397 Main St., Hyannis, plans by Walter M. Gaffney, 43 Potter St., high school. $2,175,000.

▲ Mass., Sudbury—SCHOOL—Lincoln-Sudbury Regional School Dist. Comn., Sudbury, regional high school, $1,250,000.

Mass., West Bridgewater—SCHOOL—Town, School Comn., plans by The Architects Collaborative, 95 Mt. Auburn St., Cambridge, elementary school adjacent to Junior-Senior High School, $600,000. CD 5/20.

Minn., Minneapolis—SCHOOL—Bd. Educ., H. Held, archt.-engr., 807 Broadway N.E., plans by Larson &

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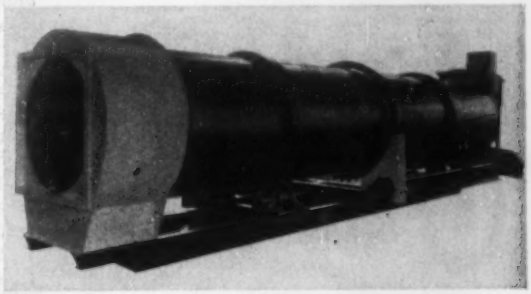

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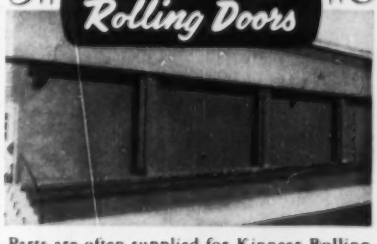

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McLaren, 1901 Foshay Tower, Henry High School addn., Morgan and 44 Aves. North. $800,000. CD 1/18.

Minn., Stewartville—SCHOOL—Bd. Educ., L. Kingsley, clk., election June 8 district will vote on authorizing $900,000 bond issue, elementary school, high school, H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 7/27.

▲ Mo., North Kansas City—SCHOOL—School Dist., H. H. Schooling, supt., 23 and Gentry Sts., voted $1,025,000 bonds May 18, Junior High School, 48 and Vivion Rd. CD 4/27.

▲ N. Y., Medina—SCHOOL—Central District No. 1, Town of Ridgeway and Shelby, plans by Duane Lyman & Assocs., 505 Delaware St., Buffalo, 2 story school, and 1 story elementary bldg., $1,785,000. CD 1/13/47.

N. Y., Woodmere—SCHOOL—Bd. Educ., School Dist. 14, Woodmere, plans by Frederic P. Wiedersum, 85 W. Hawthorne Ave., Valley Stream, elementary school, Pearl and Longview Sts., North Woodmere Park. $835,000. Levy & O'Keefe, 375 Fifth Ave., New York, engrs. CD 1/29.

▲ O., Toledo—SCHOOLS—Bd. Educ., Washington Twp., 5700 Whitmer Dr., bond election Nov. 2, three grade schools, addns. and alterations to other schools. $1,650,000.

▲ Okla., Tulsa—SCHOOL—Bd. Educ., 410 S. Cincinnati St., voted $2,430,000 bonds May 19, school bldg. CD 5/4/53.

▲ Ore., Portland—INSTUTUTION—State Bd. Control, Capitol, Salem, plans by Annand, Boone & Lei, 1530 S. W. Taylor St., intermediate institution for youthful offenders, $2,000,000. CD 12/9/52.

Pa., Girard—HIGH SCHOOL—School Dist. of Girard, Girard, plans by Nelson, Goldberg & Heidt, 1215 G. Daniel Baldwin Bldg., Erie, 1 story, brick bsmnt., high school addn., alterations. $700,000.

Tex., Amarillo—POLICE STATION, etc.—City, City Hall, plans by J. Roy Smith, 108 E. 10 St., 2 story brick masonry police, jail and courts bldg. $500,000. CD 5/19.

▲ Tex., Austin—COTTAGES, etc.—Bd. for Texas State Hospitals & Special Schools, Design & Constr. Div., 4405 Lamar Blvd., plans by Fehr & Granger, 502 E. 5 St. and Niggli & Gustafson, 1313-A S. Congress Ave., cottages constr., remodeling some existing bldgs. to care for approx 500 children-patients, $1,500,000; auditorium-admin. bldg. $375,000; school, $450,000; water sys. $40,000; sanitary sewers, $65,000; storm sewers and drainage, $60,000 for State School for Deaf. CD 5/14/53.

▲ Tex., Houston—HOSPITAL—City, City Hall, 900 Brazos St., and Harris Co., Court House, plans by Alfred C. Finn, Bankers, Mortgage Bldg., H. E. Maddox & C. E. Johnson, 3501 Buffalo Dr., 700-bed hospital, incl. 10 story hospital wing, 8 story outpatients; 6 story nurses home. $16,500,000. Robert J. Cummins & Ref. F. Taylor, Bankers Mortgage Bldg., engrs. CD 8/28/52.

▲ Tex., Houston—GARAGE—City, City Hall, 900 Brazos St., municipal public auto parking garage. $1,500,000. Frank Baldwin, dir. P. Wks.

▲ Tex., Port Arthur—SCHOOLS—Port Arthur Independent School Dist., Port Arthur, voted bonds May 15, high schhool, $3,218,861; No. 1 Elementary School for Whites, $425,009; No. 2 Elementary School for Whites, $440,000; No. 3 Elementary School for Negroes, $965,000; conversion existing T.J. high school into Junior High School, $300,000; classroom addns. for upper grade schools, $319,500; classroom addns. for lower grade schools, $329,361. CD 4/30.

▲ Wis., Granville—SCHOOL—Brown Deer School District, Brown Deer, union high school. $1,200,000.

Ont., Chalk River—HOUSING—Defence Constr. Ltd., 56 Lyon St., Ottawa, addnl. housing. $500,000. J. D. Jennison, c/o owner, secy.

Ont., Pembroke—HOUSING—Defence Constr. Ltd., 56 Lyon St., Ottawa, housing. $500,000. J. D. Jennison, c/o owner, secy. CD 6/14/49.

COMMERCIAL BUILDINGS

▲ Calif., Lancaster—DWELLINGS—Vern R. Huck, 3021 Rowena Ave., Los Angeles, plans by Reich & Starkman, 251 S. Robertson Blvd., Beverly Hills, 146 frame, stucco dwellings, $1,000,000.

▲ Calif., Los Angeles — HEADQUARTERS — California Teachers Assn., 612 S. Figueroa St., 5 story headquarters bldg. $1,300,000. Kistner, Wright & Wright, 816 W. 5 St., consult. engrs.

Calif., San Francisco—TRAINING COLLEGE—Salvation Army, 101 Valencia St., plans by Ward & Bolles, 215 Leidesdorff St., training college and present buildings alterations. $500,000.

D. C., Wash.—CHURCH—Mt. Vernon Place Methodist Church, 9 and Massachusetts Ave. N.W., Wash., D. C. Plans by Leon Chatelain, 1727 K St. N.W., church addn. $500,000.

Ill., Glencoe—SHOPPING CENTER—Landua & Perlman, 110 S. Dearborn St., Chicago, plans by Cone & Dornbusch, 100 La Salle St., Chicago, fashion shopping center, $750,000.

Minn., Fergus Fall—OFFICE—Otter Tail Power Co., Fergus Falls, plans by Larson & McLaren, 1901 Foshay Tower, Minneapolis, 2 story, bsmnt., 45,000 sq. ft. office, $750,000.

Mo., St. Louis County—SCHOOL—St. Louis Archdiocese of Catholic Church, c/o Most Rev. Joseph E. Ritter, archbishop, 3810 Lindell Blvd., St. Louis, Zone 8, brick, concrete, steel elementary grade and high school. $500,000.

▲ N. H., Nashua—SHOPPING CENTER—Howard R. Flanders, Daniel Webster Hy., plans by William Hoskins Brown, 125 Tremont St., Boston, Mass., 1 and 2 story shopping center, stores, restaurant, motel parking, etc., heating plumbing, electric, Daniel Webster Hy. $6,000,000. Hayden, Harding & Buchanan, 810 Park Square, Boston, Mass. consult. engrs. CD 10/23.

▲ N. Y., Brooklyn—HOUSING—Hall Developers, Inc., 183 Willoughby Ave., Zone 5, housing, nine 14 story bldgs., on tract bounded by Emerson Pl., Myrtle Ave., Hall St., Willoughby Ave., John's Pl., Lafayette Ave., Clason and DeKalb Aves. $20,000,000.

▲ O., Cincinnati—HOSPITAL—Christ Hospital, Auburn Ave., plans by Tietig & Lee, 34 W. 6 St., 10 story 146-bed hospital addn., chapel addn. to present hospital bldg. $4,000,000.

▲ O., Cincinnati—RESIDENCES—William S. Edgemon, Union Trust Bldg., development of 56-acre residential tract near Salem Pike and Kellogg Ave. $1,500,000. Ayres & Graf, 527 Linton St., consult. engrs.

▲ O., Cleveland Heights—OFFICE BLDGS.—Leemont Co., c/o T. W. Grogan, 640 Hanna Blvd., Cleveland, Zone 15, plans by George A. Letts, 3091 Mayfield Rd., eight one and two story brick, limestone office bldgs., Lee Rd. and Monticello Blvd., parking for 500-cars. $3,000,000.

▲ O., Columbus—APARTMENT—Shelby Constr. Co., 1108 Canal St., New Orleans, La., 17 story, 532-rental unit apartment, E. Broad St. between Ohio Ave. and 22 St. $4,000,000.

▲ O., Toledo—HEADQUARTERS—Local 12, United Auto Workers, CIO, 425 Winthrop St., plans by G. C Albanese, c/o owner, headquarters bldg., recreation center, shopping center, incl. 2,000-seat auditorium, 20-lane bowling alley, gymnasium, stores, offices, meeting space, etc., Ashland Ave. $1,200,000. CD 8/15/51.

▲ Ore., Portland—SHOPPING CENTER—Lloyd Corp., Ltd., 720 N.E. 12 St., plans by John Graham, Dexter Horton Bldg., Seattle, Wash., 65-acre shopping center. $20,000,000. Harland Bartholomew & Assocs., 317 N. 11 St., St. Louis, Mo. consult. engrs.

▲ Tex., Austin—HOTEL—East Side Development Co., Perry-Brooks Bldg., plans by Kuehne, Brooks & Barr, Perry-Brooks Bldg., 100-room addn. to Commodore Perry hotel. $1,000,000.

Wash., Moses Lake—HOUSES—Modern Home Builders, Inc., 3849 34 Ave. S., Seattle, 60 houses, $600,000.

▲ Wash., Moses Lake—HOUSES—North Terrace Rentals, c/o Nelse Mortensen & Co., 1021 Westlake Ave. N., Seattle, 100 houses. $1,000,000.

▲ Wash., Moses Lake—HOUSES—Terrace Homes, Inc., Moses Lake, 100 houses, $1,000,000.

Wis., Wauwatosa—HOME—Home for The Aged Lutherans, 7500 W. North Ave., Zone 13, home addn. $500,000.

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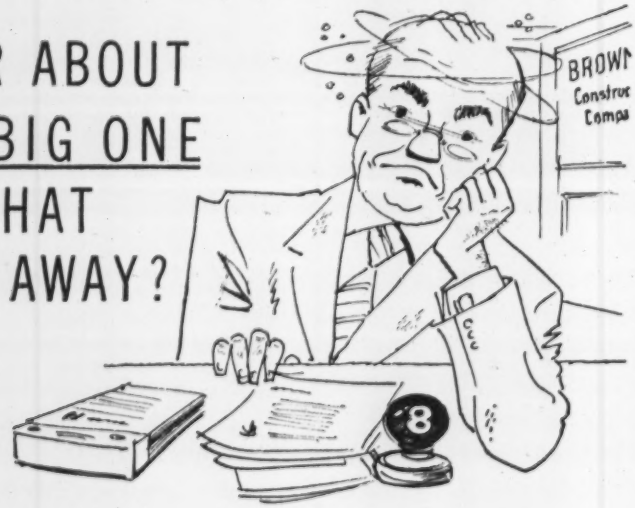

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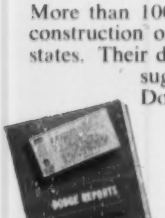

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Ont., Toronto—APARTMENT BLOCK—Dr. Julius Kuhl, 1447 Eglinton Ave. W., plans by E. I. Richmond, 455 Spadina Ave., 3½ story, brick, steel, 71 suite apartment block, Glen Elm Ave. near Alvin Ave. $576,000.

Ont., Toronto—OFFICE—Royal Bank of Canada, 10 King St. E., plans by Page & Steele, 72 St. Clair Ave. W., Toronto, and M. K. Kaiman, consult. archt., 1200 St. Alexander St., Montreal, Que., 10 story, 60,000 sq. ft., concrete frame, limestone, brick, office, Bay and Temperance Sts. $600,000.

Que., Montreal—APARTMENT BLOCKS—Dumas & Dumas Eng. 9911 St. Michel Blvd., plans by R. Chalifoux, 6275 Papineau Ave., three 90-suite, concrete, brick, stone apartment blocks, St. Lawrence Blvd., $900,000.

INDUSTRIAL BUILDINGS

▲ Ariz., Clarksdale—CEMENT PLANT—Halliburton Oil Well Cementing Co., Duncan, Okla., cement plant with 120 mi. pipe line to carry wet cement to Phoenix, $5,000,000.

▲ Ind., Shelbyville—PLANT—General Electric Co., River Rd., Schenectady, N. Y., industrial furnace mfg. plant. $5,000,000.

Mass., Burlington—RESEARCH AND MFG.—Trans-Somics Inc., E. T. Rigney, Bedford Airfield, Bedford, plans by Holmes & Edwards, Inc., 126 State St., Boston, 2 research and mfg. bldgs., $500,000; brick, cinder block research and mfg. bldg. Rtes. 3 and 128, $240,000, W. H. Ballard Co., 45 Milk St., Boston, coordinators.

Mass., Dedham—WAREHOUSE—The Great A & P Tea Co., 530 Atlantic Ave., Boston, 65,000 sq. ft. brick warehouse, Westwood St. $500,000.

▲ Mass., Natick—BREWERY—Carlings Brewery, 9400 Quincy St., Cleveland, O., brewery, Rte. 9 Worcester Turnpike, $15,000,000. CD 4/6.

Pa., St. Marys—PLANT—Sylvania Electric Products Co., Williamsport, 1 and 2 story, brick, block, steel, 150,000 sq. ft. lamp mfg. plant. $500,000.

▲ Tex., Houston—CHEMICAL PLANT—Nyotex Chemicals, Inc., c/o Greens Bayou, chemical plant on Ship Channel, expansion. Approx. $1,000,000. CD 1/9/46.

Tex., Houston—OFFICE and LABORATORY—Shell Oil Co., Shell Bldg., office, $400,000; laboratory unit, $600,000, site off 3800 Blk. Bellaire Blvd. CD 10/11/51.

▲ Tex., Houston—REFINERY—Wilson Oil Co., Cotton Exchange Bldg., refinery plant, $2,500,000; machinery and tool shop, $90,000, 26-acre industrial site on Katy Hy.

▲ Ont., Brantford—FACTORY—A. G. Spalding & Bros. of Canada Ltd., 5 Edward St., plans by C. G. Mac Lean, 577 Eglinton Ave. N., Toronto, Ont., 1 story, 300x300 ft. factory, Highway No. 53, $1,000,000.

▲ Ont., Toronto—PLANT EXPANSION—Canadian Industries Ltd., P.O. Box 10, Montreal, Que., paint and varnish div. plant expansion, Castlefield and Snyder Aves., $1,500,000. D. A. Killam, c/o owner, superv., constr. engr.

Que., Quebec City—BAKERY—National Bakery Ltd., Bell Hill, plans by E. Adams, c/o owner, bakery. $500,000. (Correction-cost). CD 5/18.

UNCLASSIFIED

▲ Nebraska—RURAL DISTRIBUTION LINES—South Central Membership Assn., Nelson, new lines, sys. imprvs. and completion previously approved constr. Nuckolls Co. $1,239,000 REA allot. Flora Eng. Co., 56 and Holly Sts., Denver, Colo., consult. engr.

▲ O., Cleveland—HARBOR DEVELOPMENT—City, Dpt. P. Service, Louis L. Drasler, dir., City Hall, harbor development, incl. steel bulkheading and back filling of area between W. 6 to E. 9 Sts. $2,300,000. CD 3/1/43.

▲ Oklahoma—LODGES, CABINS, etc.—State Planning & Resources Bd., State Capitol Bldg., Oklahoma City, LODGES, CABINS AND SIMILAR FACILITIES.

Alabaster Caverns Park, $100,000.
Beavers Bend Park, $80,000.
Boiling Springs Park, $75,000.
Greenleaf Lake, $100,000.
Lake Murray Lodge, $600,000. CD 8/16/48.
Lake Texoma, 106-room lodge, 20-room fishermans lodge, 50 cabins and restaurant facilities. $2,107,891. CD 5/22/52.
Lake Wister Park, $125,000. CD 11/8/50.
Osage Hills Park, $90,000.
Quartz Mt. Park, white lodge, $500,000.
Robbers Cave Park, $100,000.
Roman Nose Park, $165,000.
Sequoyah Park, lodge for whites, $1,794,928; lodge for colored, $595,269. CD 7/31/53.
Ten Killer Dam Park, $250,000.

▲ Ore., Portland—DOCK IMPRVS.—Portland Public Docks Comn., 3070 N.W. Front St., bond issue approved dock imprvs. $6,500,000. Thos. Guerin, c/o owner, engr. CD 8/8/45.

▲ Ore., Portland—SPORTS and CONVENTION CENTER—City, City Hall, bond issue approved sports and convention center. $8,000,000. L. G. Apperson, city engr. CD 12/29.

▲ Ore., Portland—ZOO—City, City Hall, approved 5-year levy zoo constr. $3,800,000. Lawrence, Tucker & Wallman, Failing Bldg., archts. L. G. Apperson, c/o owner, engr.

Pennsylvania—RURAL DISTRIBUTION LINES—Tri-County Rural Electric Co-operative, Inc., Mansfield, 45 mi. electric distr. line, addnl. sub-station facilities and sys. imprvs. Tioga Co. $900,000. CD 5/12/48.

ANY JOB CAN BE FINISHED WITH CLEAN, DUST-FREE FLOORS AT VERY LOW COST!

when cured and protected with

SISALKRAFT

Sisalkraft is so strong it provides positive protection from debris and construction stains and helps prevent marring.

Since it is light in weight and easy to handle, Sisalkraft can be rolled into place easily, and can be removed quickly after completion of the job! Since it resists tearing and scuffing, Sisalkraft can be re-used on many jobs . . . and it performs a big service at very low cost per job.

Curing and protection of concrete becomes automatic with Sisalkraft . . . no watching, sprinkling, inspection . . . no other cover needed.

Perfect protection, too, for stone trim and covering of materials and equipment at the job site.

Standard widths from 3 to 8 feet, 13½'. Big "blankets" can be made in any widths up to 26½ feet.

COPPER ARMORED SISALKRAFT

another Sisalkraft product, provides the advantages of heavy gauge copper at one fifth the cost.

Write for samples and information on Sisalkraft for protection and curing or on Copper Armored Sisalkraft. Department ENR-6, Attleboro, Massachusetts.

SISALKRAFT PRODUCTS

AMERICAN SISALKRAFT CORPORATION

Attleboro, Mass. • Chicago 6, Ill.
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DRILLING CONTRACTORS

Diamond and Shot Core Borings
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Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

Would you use 1925 construction equipment today? No. Why not change over and equip your jobs with modern office trailers and cut costs.

CONTRACTORS' OFFICE TRAILER

Models 23½'—30'—35' Price $2170 to $3580

Birch finish, drafting table, 2 built-in desks with letter files & drawers, other conveniences. Can offer three years' finance plan. Write for pictures and plans.

TRAILER VILLAGE SALES, INC.
8642 Pulaski Highway, Baltimore 21, Md.
Phones: Murdock 7-2233

Prepakt Encases Bridge Piles for Seaboard

Recently, the Prepakt method of pile encasement was employed for repairing four bridges of the Seaboard Air Line R. R. Co. Steel H-piles and concrete pile caps on these bridges, located near tidal rivers in Florida and South Carolina, were showing signs of deterioration.

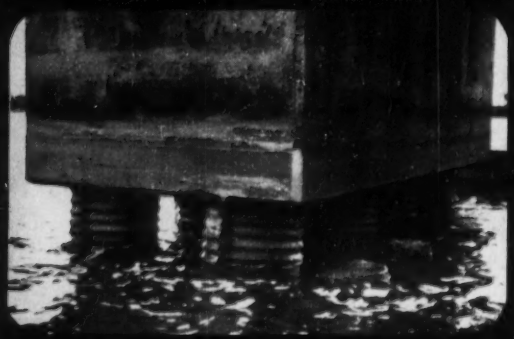
Here are important advantages of the Prepakt method:

Economy—Prepakt methods permit encasement of piles without unwatering. No cofferdams are required and all work can be done without taking bridges out of service.

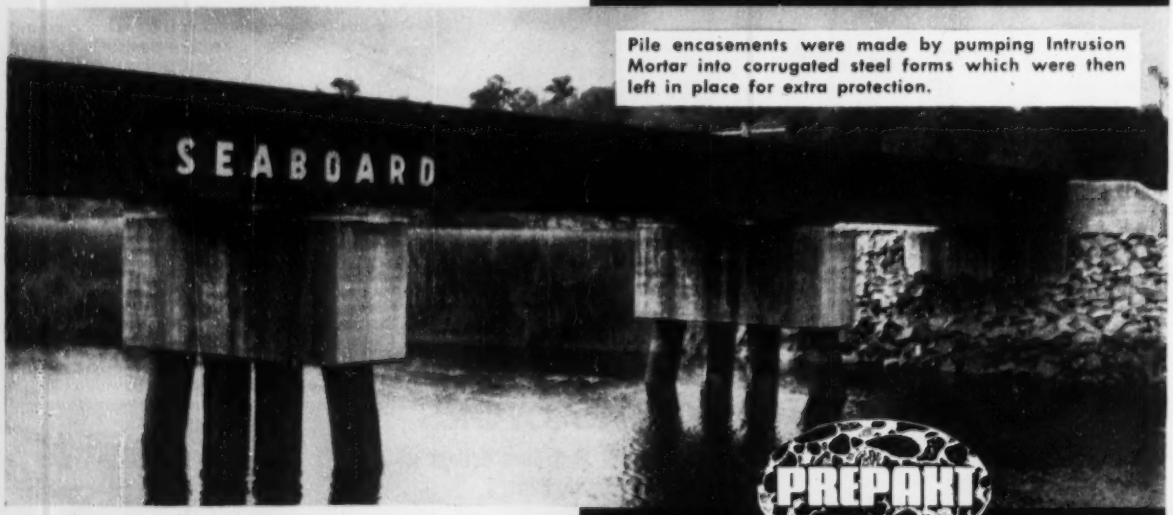
Permanent Bond—Prepakt's encasement technique produces high-strength structures permanently bonded to existing piles and pile caps.

Durability—Dense, impermeable Prepakt Concrete has excellent weathering qualities and superior resistance to action of salt water.

Seaboard bridge across Trout River was one of four where Prepakt pile encasement methods were used to repair the structures.



Prepakt rebuilt bottom of pile cap with Prepakt Concrete made by preplacing coarse aggregate in forms, followed by consolidating with Intrusion Mortar.



Pile encasements were made by pumping Intrusion Mortar into corrugated steel forms which were then left in place for extra protection.

A request on your company letterhead will bring complete information on this and other Prepakt applications. Write the Main Office, Room 779-P, Union Commerce Bldg., Cleveland.

CHICAGO • PHILADELPHIA • KANSAS CITY
ATLANTA • SEATTLE • SAN FRANCISCO

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PREPAKT

INTRUSION-PREPAKT, INC.
THE PREPAKT CONCRETE CO.

MAIN OFFICE: CLEVELAND 14, OHIO
CANADIAN OFFICE: TORONTO, ONTARIO

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 15 Massachusetts

▲† Me., Limestone—COMMUNICATIONS FACILITIES—BA About 7/9—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., communications facilities, Limestone Air Force Base, ENG-19-016-54-121. $1,000,000-$2,000,000. Plans deposit $25.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 22 Maryland
STREETS AND ROADS
June 15 Maryland June 22 New Jersey

▲ N. Y., New York—CAMPUS BLDGS. REPAIRS—BA 6/22—Bd. Higher Educ., The City College, 136 St. and Convent Ave., Zone 31, Contr. 1, general constr. work, Groups A and B; Contr. 2, plumbing, Groups A and B; Contr. 3, heating and ventilating; Groups A and B; Contr. 4, electrical, Groups A and B; Contr. 5, food service equip. Bldg. 24, Group A for alterations and repairs to ten buildings of The City College, South Campus (Manhattanville). Plans deposit $60 Contr. 1; $40 Contr. 2; $30 Contr. 3; $40 Contr. 4; $20, Contr. 5. CD 10/20/44.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEW YORK—New York State Bridge Auth., The Governor Alfred E. Smith State Office Bldg., Albany,
Merritt-Chapman & Scott Corp., 260 Madison Ave., New York 16, N. Y., CA $4,495,477. Kingston-Rhinecliff Bridge substructure, 7,793 ft. long from abutment to abutments, 36-ft. roadway flanked by two ft. walks over Hudson River, 3.5 mi. north of Kingston; Ulster and Dutchess Counties. Bids Apr. 20. CD 4/21, under LB.

▲ **Consolidated Eng., Co.,** 20 E. Franklin St., Baltimore, Md. LB $2,264,510. marginal wharf and warehouse, Wolfe and Aliceanne Sts. for National Can Corp., 811 South Wolfe St., Baltimore, Md., BALTIMORE, MD. Bd. Estimates, Mayor and City Council of Baltimore, City Hall, Baltimore 2, Md. Bids May 26. CD 5/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Greenhaven Estates Building Corp.,** 63 Greenhaven Rd. Rye., N. Y. Owner Builds. $2,500,000. 46 HOUSES tract bounded by Greenhaven Rd., Barlow Lane and Harbor Lane, RYE, N. Y. Alexander Zamshnick, 44 W. 56 St., New York 9, N. Y., archt.

▲ **Southwood at Old Bridge Homes,** c/o Erwin Gerber Assocs., archts., 1180 Raymond Blvd., Newark, N. J., Owner Builds, $3,500,000, 350 HOUSES on 75-acre tract on Route 18 near Old Bridge Circle, OLD BRIDGE, N. J.

SOUTH

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ALABAMA**—State Hy. Dpt., Montgomery,
M. A. Evans Constr. Co., Wetumpka, Ala., LB $349,581, 10.154 mi. Colbert Co.; LB, $100,800, 6.221 mi. Maengo Co.; LB, $96,827, 9.981 mi., Choctaw Co.;
J. W. Gwinn, Jr., Comer Bldg., Birmingham, Ala., LB, $109,673 6.714 mi. Marshall Co.;
Newell Brothers, Hope, Ala., LB, $501,417, 8.289 mi. Butler Co.; LB, $223,773 7.987 mi. roadway in Russell Co.;
MacDougald Constr. Co., Northside Dr. N. W., Atlanta, Ga., LB, $769,303, 7.655 mi. Madison Co.;
J. R. Bryant Constr. Co., 121 Molton St., Montgomery, Ala., LB, $643,318 6.3 mi. Montgomery Co.;
Roberts Constr. Co., 1318 N. 23 St., Birmingham, Ala., LB, $137,510, 6.429 mi. Lamar Co.;
Harbert & Cargile, Inc., Monroe Park, Mobile, Ala., LB, $152,027, 6.287 mi. Wilcox Co.;
Joe F. Walters, Troy, Ala., LB, $80,842, 4.734 mi. Russell Co.;
Hewitt Contrg. Co., Buena Vista Rd., Columbus, Ga., LB, $454,505, 28.7 mi. Shelby Co.;
G. & R. Coal Co., Harriman, Tenn., LB, $79,791, 7.632 mi. Colbert Co.;
Kaley Contg. Co., Aberdeen, Miss., LB, $159,146, 7.765 mi. Lamar Co.;
Burgreen Contg. Co., Athens, Ga., LB, $63,390, 4.587 mi. Lawrence Co.;
Hardaway Constr. Co., 15 11 St., Columbus, Ga. LB, $954,774, 9.044 mi. roadway, Morgan Co.;
Floyd S. Milford, 1412 S. 13 St., Birmingham, Ala., LB, $507,012, grading, drainage roadway, Limestone Co.;
Money Contg. Co., 915 3 Ave. West, Birmingham, Ala. LB, $287,313, rock crushing in Limestone Co., Bids May 21. CD 5/17.

▲ **R. P. Farnsworth & Co., Inc.,** and **Silas Mason Co.,** 1515 S. Salcedo St., New Orleans, La. CA $4,354,-000. Harvey Canal Tunnel, Jefferson Parish, LOUISIANA. State Hy. Dpt., Highway Office Bldg., Baton Rouge, La. CD 4/30, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John Tester & Son, Inc.,** 1620 Second St. S. W., Wash., D. C.; LB $3,982,407 HOSPITAL, RICHMOND, VA. Richmond Memorial Hospital, Inc., c/o Life Insurance Co. of Virginia, 914 Capitol St., Richmond, Va. Bids June 2. CD 4/30.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 22 Michigan
STREETS AND ROADS
June 22 Michigan

▲ **Ind., Elkhart**—BA 6/29—Bd. P. Wks., R. H. Shafer, clk., City Hall, sewage treatment plant, 8 lift stations, intercepting sewers, river crossings $3,000,000. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, Ill., engrs. CD 12/6/44.

SOON LETS CONTRACT—BUILDINGS

▲ **Mich., Battle Creek**—PLANT—Kellogg Co., Battle Creek, soon lets contract food processing plant, rehabilitate and imprvs., power plant, $3,000,000. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, archt. CD 5/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
McDowell Co., Inc., 3203 W. 71 St., Cleveland, O., LB $5,133,333, est. $5,520,500, structure 0.505 mi. SR 120-3.46, City of Toledo, Pt. No. 3-Toledo Expressway Sys., Maumee River Bridge superstructure, Bridge No. LU-120-35, UI-1052 (9), Lucas Co.;
cancelled bids to have been opened May 25, Type T-71 and structure 0.776 mi. SR 246-15.55, City of Toledo, U-UG-848 (2), Lucas Co. CD 4/28.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
cancelled bids to have been opened June 8, c. conc. paving, constr. steel beam bridge with concrete deck and abutments, Br. No. GR-35-20 over B. & O. R.R. continuous steel beam bridge with concrete deck and substructure, Br. No. GR-35-23 over Little Beaver Creek; continuous steel beam bridge with concrete desk and concrete abutments and piers; Br. No. GR-35-45 over Beaver Creek; continuous steel beam bridge with concrete deck and substructure, Br. No. GR-35-61 over Little Miami River, 9.951 Mi. Sec. GRE-35-(0.13-9.45), U.S.R. No. 35, Beaver Creek and Xenia Twps. city of Xenia, Green Co., est. $5,500,000; c. conc. paving, constr. grade crossing elimination with N.Y.C. R.R., consisting of steel girder bridge with concrete substructure, Br. No. LU-246-157 carrying tracks of N.Y.C. R.R. over S.R. 246 (Dorr St.) 0.776 mi. Sec. LUC-246-15.55. S.R. 246, City of Toledo, Lucas Co. CD 5/14.

▲ **INDIANA**—State Hy. Comn., State House Annex, Indianapolis, Zone 4,
Ryan Constr. Co., 800 E. Michigan St., Evansville, Ind., CA, $2,661,067, est. $3,153,585 Penn St. Expressway and Overhead over Railroads Combined, Evansville, Vanderburgh Co. Bids May 18, awarded May 28. CD 5/3.

▲ **S. A. Healy Co.,** 20 N. Wacker Dr., Chicago 6, Ill., CA, $3,349,729, West Side Twin Subway Tubes, beneath Congress Superhighway, from Chicago River to Des Plaines St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Feb. 16. CD 2/23, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Owner,** c/o F. L. Glick, archt., 3938 N. Central St., Chicago, Ill., Own Forces, $8,000,000, 500 HOMES, 94 and Union Sts. and area, CHICAGO, ILL.

▲ **Maple Farms Country Club, Inc.,** 141 St. and Linder Ave., Midlothian, Ill., Own Forces, $4,000,000, 300 HOMES, MIDLOTHIAN, ILL.

▲ **Northbrook Contractors, Inc.,** 1200 Dell Rd., Northbrook, Ill., Own Forces, $5,000,000, 325 HOMES, Sunset Ridge Rd. and Dundee Rd., NORTHBROOK, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.

▲ **Siesel Constr. Co.,** 514 E. Ogden Ave., Milwaukee 2, Wis., CA, $2,083,000, general contract Central LIBRARY addns. ,alterations, MILWAUKEE, WIS. Bd. Library Trustees, 814 W. Wisconsin Ave., Milwaukee, Wis. Bids May 20. CD 5/25, under LB.

▲ **Siesel Constr. Co.,** 514 E. Ogden Ave., Milwaukee, Wis., LB, $2,993,000, Hillside Terrace HOUSING addn., MILWAUKEE, WIS. Milwaukee Housing Auth., 408 E. Wells St. Milwaukee 2, Wis. Bids June 1. CD 4/20.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 29 Montana
STREETS AND ROADS
June 29 Montana

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. H. Leveck & Son,** Cantrell and Riverside Roads, Little Rock, Ark., CA, $2,151,447, constr. 8 airmen's dormitories and 2 mess hall-administration bldgs., Little Rock Air Force Base, JACKSONVILLE, ARK. Bids May 26, awarded May 28. CD 4/27.

▲† **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., and **Condon-Cunningham Co.,** 4229 Lafayette St., Omaha, Neb., CA, $3,058,020, 4,231 ft. runway exten. at Offutt Air Force Base, taxiway, earth fill and relocation of railroad, Inv. 25-066-54-60, FORT CROOK, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 18. CD 5/20, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **H. R. Henderson & Co. and A & H, Inc.,** Box 313, Marshall, Tex., CA $2,480,479, Group 2, 41 masonry type BUILDINGS, appurtenances, utilities, etc., Longhorn Ordnance Works, Plant 3, Inv. No. ENG-34-066-54-71, MARSHALL, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids May 20. CD 5/28, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 23, 24 California
STREETS AND ROADS
June 23, 24 California

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Ralph B. Slaughter, Box 228, Julian, Calif., LB, $138,-921 20.8 mi. between Range 9 East and Colorado River portions, Riverside Co., Bids May 20, CD 4/30;
McCammon-Wunderlich Constr. Co., & C. K. Moseman, Box 539, Palo Alto, Calif., LB, $2,251,559, 14.4 mi. and 6 rein.-con. bridges, between Garnet and Thousand Palms, Riverside Co.;
Granite Constr. Co., P. O. Box 900, Watsonville, Calif. LB, $245,832. 19.8 mi. between Ludlow and Amboy, San Bernardino Co. Bids May 20. CD 4/29.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
Gordon H. Ball, San Ramon Valley Land Co., & Clements Constr. Co., Camille Ave., Danville, Calif., LB, $923,-692, 8.4 mi. between Redmond Overhead to west city limits of Tracy, Alameda and San Joaquin Counties;
Ball & Simpson, Erickson, Phillips & Weisberg & Roscoe Phillips, Berkeley, Calif., LB, $2,670,871 2.9 mi. and separation structure between Foothill Blvd. and Jct. Rt. 69 Alameda Co.
Harms Bros., 5261 Stockton Blvd., Sacramento, Calif., LB, $139,784, 13.2 mi. between Hayden Hill Rd. and Rt. 28 near Adin, Lassen and Modoc Counties;
John Burman & Son, 2750 Harrison Ave., Eureka, Calif., LB, $503,134, 0.8 mi. at Red Mountain Creek, 17 mi. south of Barberville, Mendocino Co.;
Baker & Pollock, 211 N. Olive St., Ventura, Calif., LB, $152,667, 6.8 mi. between Pismo Bech and Marsh St., San Luis Obispo Co. Bids May 26. CD 5/5.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 15 Ontario

BIDS ASKED—BUILDINGS

▲ Ont., Toronto—HOUSING—BA 6/21—Central Mortgage & Housing Corp., 234 Bloor St. W., 500 houses housing development in West Toronto Area, for defence workers $4,500,000. CC 7/27.

ALASKA

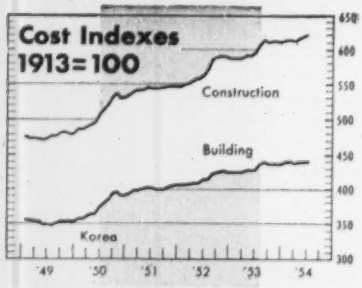
HEAVY CONSTRUCTION

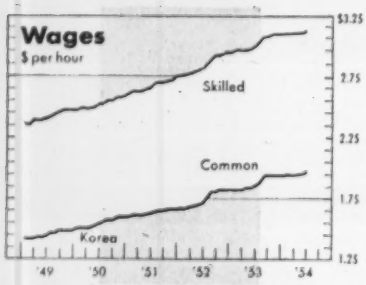
LOW BIDS AND CONTRACTS

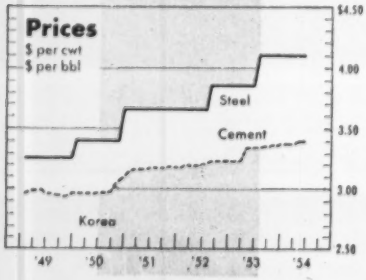
▲† **L. E. Baldwin, Inc.,** 1103 N. 36 St., Seattle 3, Wash., LB $2,128,695, est. $2,381,632, 2 story, 80x200 ft. rein.-con. warehouse, ENG-95-507-54-61;
Lytle & Green and S. Birch & Sons, Securities Bldg., Seattle 1, Wash., LB $643,886, est. $1,053,000. steam tie lines, manholes and electrical service to manholes, ENG-95-507-54-95, Elmendorf Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids May 28. CD 5/5.

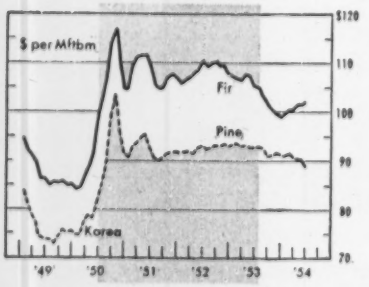
(Proposal Advertisements see pp. 111 & 112)

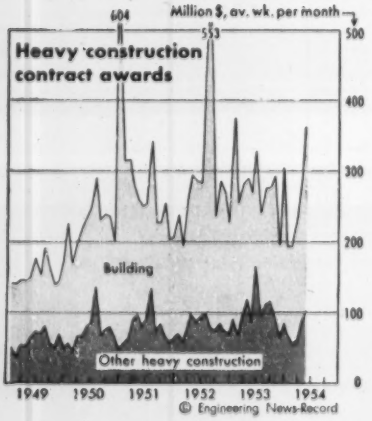
JUNE CONSTRUCTION SCOREBOARD











ENR INDEXES (1913 = 100), 20-cities' average	1954 June	% Change from last Month	% Change from last Year
Construction Cost	622.49	+0.6	+4.8
Building Cost	440.12	+0.3	+3.2
WAGE RATES, 20-cities' average			
Common	$1.983	+1.0	+6.9
Skilled (aver. 3 trades)	3.133	+1.0	+5.3
Bricklayers	3.416	+0.9	+3.5
Structural Ironworkers	3.099	+0.6	+6.3
Carpenters	2.886	+0.4	+6.4
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.399	0.0	+1.8
Structural Steel, (3-mill aver.), per cwt	4.100	0.0	+6.5
Sand, per ton	2.232	0.0	+2.7
Lumber, 2x4 Fir, per M. ft. bm	102.556	+1.0	−2.6
Lumber, 2x4 Pine, per M. ft. bm	89.117	−1.1	−4.0
Common brick, per M	33.136	0.0	+2.6
Ready-mixed concrete, per c. y	12.034	0.0	+2.2
Structural Clay Tile, 3x12x12 per M	160.468	0.0	+1.2

CONTRACTS AWARDED (Millions)	1954 May	1954 5-Mos. (21-Weeks)*	% Change from '53 May	% Change from '53 5-Mos. (22-Weeks)*
Total U. S. (ENR reported)	$1,436.9	$5,342.9	+32.6	− 15.0
Private	922.2	3,131.5	+45.2	− 16.1
Public	514.7	2,211.4	+14.7	− 13.5
Federal	104.3	413.0	+ 6.8	− 32.5
ENR Volume Index, '13 = 100	648	455	+29.8	− 14.3
NEW CAPITAL (Millions)				
Total	1,004.5	3,760.6	+ 8.1	+ 3.2
State & Municipal Bond Sales	683.2	2,361.3	+35.9	+ 27.1
Corporate Security Sales	198.5	1,233.4	−53.2	− 29.2
Federal (non-federal work)	62.1	105.2	+2487.5	+117.4
Federal (federal work)	60.7	60.7	.....	.....

* Computed on weekly average

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1954 March (M) April (A)	3-Mos. (3) 4-Mos. (4)	% Change from '53 Mo.	% Change from '53 Yr.-Cum.
Cement, bbls, Bu. of Mines	18.740(M)	45.085(3)	−10.0	−7.0
Fabr. Struc. Steel, tons AISC	.290(A)	1.074(4)	+10.2	+5.0
Lumber, mil. ft. bm., NLMA	3.353(M)	8.765(3)	− 2.8	−8.1
Lumber Prod., mil. ft. bm., NLMA	3.358(M)	9.008(3)	+ 1.4	−2.9
Contract Const. Employ., BLS	2.512(A)	2.405(4)†	+ 4.0	+3.4

† Average

ENR CONSTRUCTION & BUILDING COST INDEXES IN 21 CITIES (1913 = 100)

	Construction cost June '54	Construction cost Mar. '54	Building cost June '54	Building cost Mar. '54		Construction cost June '54	Construction cost Mar. '54	Building cost June '54	Building cost Mar. '54
Atlanta	458	458	392	392	Los Angeles	640	634	433	428
Baltimore	548	549	423	424	Minneapolis	681	661	473	468
Birmingham	465	465	386	386	Montreal	513	516	393	396
Boston	675	627	438	436	New Orleans	516	506	422	419
Chicago	693	692	449	445	New York	732	732	516	509
Cincinnati	630	630	434	435	Philadelphia	681	666	503	494
Cleveland	731	712	451	442	Pittsburgh	642	642	469	469
Dallas	465	470	390	393	St. Louis	669	655	457	455
Denver	597	595	443	441	San Francisco	617	602	407	402
Detroit	702	685	455	449	Seattle	665	664	413	412
Kansas City	645	634	450	446					

For quarterly indexes Sept. '48 to Sept. '53 see October 8, 1953 ENR, page 93.

Volume in May sets a record, biggest since January 1953

Never before have contractors signed up so much new business during the month of May. Heavy construction contracts reported to ENR and the Construction Daily during that month shot up to $1,437 million, 33% more than in May a year ago and 25% more than in April 1954. On the basis of average weekly awards, May (which had four weeks) was the biggest month for contract volume since January 1953.

This spurt in May awards followed an April when volume came within 1% of the record for that month. For the first five months of this year, awards top $5.4 billion, still 15% below the record weekly average of the 1953 period. But for the first four months, total contract volume had been 25% behind last year. And for the first three months, it lagged 34%.

• **A big year**—If new business keeps coming in as fast as it has during the last two months—and there are signs it may—this year might turn out to be as big a year as 1953. Much will depend on what industrial building and highway awards do in coming months. The trend in federal work also will be a big factor.

That's why it is encouraging to see a rise in industrial awards during May, and a slight gain in volume of federal public works. Highway contracts leveled off in May. But because of the huge volume of turnpike bond issues already sold or scheduled to be sold this year, highway contracts should hit a new peak in 1954.

• **Housing record**—Other important reasons for an optimistic outlook: the fast pace of awards for mass housing and commercial buildings, the only two categories in which volume so far this year is ahead of 1953.

Mass housing contracts made a new record for any month, on the basis of average weekly awards. This, combined with the April volume (which was the third highest for any month), brings the 1954 weekly average 4% above the previous high set in 1953.

Commercial building awards continued to climb for the sixth consecutive month, pushing the weekly average 11% ahead of the previous record for a five-month period set in 1953.

• **Public work**—Still another encouraging trend: the fact that awards for non-residential public buildings, a major category, picked up in May after a slump in April. Average weekly volume now is running only 3% behind last year.

Among other categories of public work, sewerage volume gained 53% over April, though it was slightly under a year ago. Waterworks contracts were twice the volume of both April 1954, and May 1953. Earthwork & waterways and public unclassified—both types heavily dominated by federal contracts—were higher in May than in April 1954, and in May of last year.

On the downgrade last month were bridges and public housing. For bridges it was the fourth straight monthly decline. May volume was only half the May 1953 figure.

• **Regions**—Awards were up sharply in the Middle West, west of the Mississippi, and Far West. On the basis of average weekly awards, the Middle Atlantic showed a moderate rise. The South and New England did not share in last month's surge of new business.

The May awards put the Middle West and west of the Mississippi regions within 15% of reaching their weekly average in 1953. At the end of April, weekly volume for both regions was running about 30% behind last year.

In the Far West, new awards during May brought the weekly average

(*B&F continued on page 104*)

ENGINEERING CONSTRUCTION CONTRACTS—MAY 1954

ENGINEERING NEWS-RECORD *reports contineutal U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	May, 1954							U. S. Cumulative—Five Months		% Change	Canada
	New England	Middle Atlantic	South	Mid West	West of Mississippi	Far West	Total U. S.	1954 (21 weeks)	1953 (22 weeks)	'53 to '54 Av. Wk.	May 1954
Public Works											
Waterworks	2,922	3,025	4,505	6,441	8,039	7,713	32,645	97,414	104,858	−3	1,906
Sewerage	12,452	10,681	5,251	5,056	5,400	5,241	44,081	151,552	172,347	−8	2,804
Bridges	1,203	2,246	1,707	2,283	5,198	4,655	17,292	146,870	247,627*	−38	663
Earthwork and drainage	265	793	1,669	558	11,138	8,773	23,196	113,202	144,823	−18	1,273
Streets and roads	8,657	61,736	15,293	28,861	35,892	18,419	168,858	650,807	682,080	−0.4	14,870
Public buildings, residential	1,014	2,452	3,375	1,892	3,156	302	12,191	73,642	247,500	−69	7,331
Other public buildings	12,345	16,559	24,210	26,287	23,138	34,177	136,716	658,128	713,320	−3	14,283
Unclassified	5,134	23,132	7,306	3,047	31,078	10,022	79,719	319,770	365,797	−8	4,454
Total public	**43,992**	**120,624**	**63,316**	**74,425**	**123,039**	**89,302**	**514,698**	**2,211,385**	**2,678,352***	**−14**	**47,584**
Federal government (included in above classifications)	5,659	21,570	14,686	4,736	41,399	16,885	**104,335**	**412,978**	642,079	−33	12,806
Private											
Bridges		1,680			1,000		**2,680**	**2,790**	5,552	−47	
Industrial buildings	5,663	29,302	24,508	68,292	94,530	34,491	**256,786**	**777,052**	1,355,337	−40	7,880
Mass housing	10,735	164,799	12,320	204,691	48,820	61,335	**502,700**	**1,730,937**	1,743,943	+4	28,105
Commercial buildings	12,935	23,278	9,558	32,245	34,158	8,968	**121,142**	**503,836**	477,083	+11	13,775
Unclassified		5,250	9,240	144	21,268	3,034	**38,936**	**116,941**	327,291	−63	5,000
Total private	**29,333**	**224,309**	**55,626**	**305,372**	**199,776**	**107,828**	**922,244**	**3,131,556**	**3,909,206**	**−16**	**54,760**
Total Engineering Construction:											
May, 1954 — 4 weeks	**73,325**	**344,933**	**118,942**	**379,797**	**322,815**	**197,130**	**1,436,942**				**102,344**
April, 1954 — 5 weeks	126,122	399,105	168,015	325,607	303,233	117,359	**1,439,441**				110,000
May, 1953 — 4 weeks	69,225	250,447	228,099	233,276	216,706	86,042	1,083,795				124,638
Five Months — 1954	**310,305**	**1,422,296**	**678,567**	**1,243,249**	**1,114,878**	**573,646**		**5,342,941**		**−15**	**438,025**
Five Months — 1953	322,065	1,423,332	1,166,366	1,539,206	*1,375,466	761,123			6,587,558*		473,701
% Change '53 to '54 (Av. Wk.)	+1	+4	−39	−15	−15	−21					−3

*Revised

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to 21% behind 1953 for the first five months. It had been 41% behind at the end of April. The Middle Atlantic, which now leads the other regions, is 4% ahead of its own weekly volume last year. It was 3% behind for the first four months. Even New England got enough business to put average weekly volume so far this year 1% ahead, while it was 1% behind for the first four months at the end of April.

In the South, new business is still in a slump. Contract volume declined in May, and the gap between this year's weekly volume and 1953's volume is now 39%.

The states in the Middle Atlantic region have racked up a total volume of contract awards which is 14% ahead of the second-best region, the Middle West. Their lead is narrowing, however. Last month the Middle Atlantic region was 24% ahead of the Middle West.

Change in contract

Contractors to finish air base at fixed price

Here's one more example of increasing competition: The Corps of Engineers has negotiated a fixed-price contract with Merritt-Chapman & Scott Corp. and with Johnson, Drake & Piper, Inc., both of New York City, to finish remaining work on an air base at Goose Bay, Labrador. Work to date on the Goose Bay base has been performed by the two firms on a cost-plus-fixed-fee basis.

Brig. Gen. Robert G. Lovett, East Ocean Division Engineer, said last week that the change will save about $2 million. Total cost of the project will be about $99 million. About 75% of the work has been finished, and the fixed-price contract is for $24.6 million.

Said Gen. Lovett: "This conversion is in line with the Corps of Engineers policy of using fixed-price contracts wherever possible. CPFF contracts in certain remote locations have been necessary because of the hazards and uncertainties of working in strange foreign areas of severe climatic conditions, and because of the frequent necessity—in the urgency of defense construction—of starting actual work while overall plans were still incomplete."

The East Ocean Division is supervising several hundred million dollars in defense construction, mostly of air bases, in the Atlantic and in the Arctic. This includes the northernmost base at Thule, Greenland.

New highs on costs

ENR's indexes have risen faster in '54 than in '53

Higher wage contracts for construction labor in eight cities have pushed up ENR's Construction Cost Index by 0.6% to a new high. The latest figure is 622.49, based on 1913 = 100, which is 4.8% higher than one year ago.

The Building Cost Index also reached a new high this month of 440.12, based on 1913 = 100. This index is 3.2% above the June 1953 level.

Wage boosts provided the impetus for the rise. There was no significant change in lumber prices. Pine prices declined in four cities; fir prices rose in six cities.

Wage boosts reported this month ranged from a low of five cents per hour across the board for New Orleans bricklayers, carpenters, structural ironworkers and common labor to a big 28-cent boost, including fringe benefits, for bricklayers in New York.

• **Steeper climb**—The climb in the ENR indexes during the first half of this year is steeper than in the similar 1953 period. The Construction Cost Index is 1.8% above the December level, compared with a 1.0% rise during the corresponding period last year. And the Building Cost Index is up 1.0% as against an increase of only 0.3% in the 1953 period.

One reason for the sharper rise this year is that during the 1953 period lumber prices, particularly fir, declined substantially. But they have firmed up this year. Pine prices are drifting down this year. However, the decline has been gradual so far.

• **Wage increases are less**—While a few unions have come up with hefty wage boosts this year, most of the increases have been in the 7.5-cents-to-10-cents-per-hour range. And most have been smaller than those won last year.

So far in 1954, common labor unions have signed new contracts in eight of the 20 cities ENR covers. Only in Boston did workers get a bigger raise than last year. The other increases are lower.

A somewhat similar trend shows up in the 21 new wage agreements won so far this year by skilled labor unions in 12 of the 20 cities. Of these, 13 call for smaller raises, two for the same, and in six cases the boosts are bigger than last year.

Socially secure?

New bill puts engineers under Social Security

Civil engineers—and all other professional engineers—appear almost certain to be among the roughly 10,000,000 Americans who will be brought under Social Security coverage as a result of legislation now before Congress. They were included in a group of 400,000 professionals who are self-employed in the recently passed House version of the bill.

Since there has been little or no reaction from them since passage of the bill on June 1, the engineers are almost sure to be included in the Senate version of the bill. Doctors were dropped from the House bill after they protested strongly against inclusion. Since passage last week, Congress already is getting reactions from groups that say they don't want to be included—dentists, farmers, and farm workers. But engineers have been quiet.

However, the Engineer Joint Council has gone on record before Congress as opposing compulsory inclusion of consulting engineers in the plan.

• **Provisions**—The House bill enables Congress to increase benefits from $5 to over $30 a month. The bill also:

• Raises the wage base on which the tax is paid from $3,600 to $4,200.

• Enables a worker to ignore five years in which his earnings were lowest (or non-existent) in computing his average monthly wage.

• Makes the limitation on earnings of beneficiaries under 75 years of age the same as for wage earners and self-employed persons. This means a retired beneficiary could earn up to $1,000 a year without losing any benefits. One month's benefit would be lost for each $80 he earns in excess of $1,000, but the $1,000 limitation could be applied to the entire year.

• Hikes the tax paid by employes and employers alike from present 2% to 3½% in 1970, and 4% in 1975. For self-employed, the tax goes to 5½% in 1970 and to 6% in 1975.

All the new provisions go into effect next Jan. 1, with the exception of the increase in benefits, which becomes effective in October, just before elections.

The legislation is due to be taken up by the Senate Finance Committee the week of June 21, when Chairman Eugene Milikin says hearings will run at least two weeks.

(*B&F continued on page 106*)

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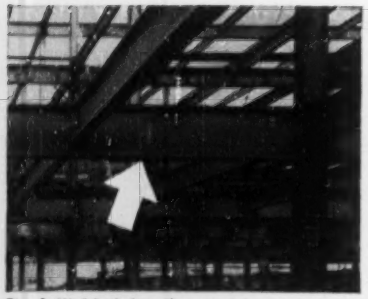

Fig. 1. Welded detail *on multi-story 1700-ton framework built with 15% less steel. Structural designers: Paul E. Jeffers and Robert Wilder, Los Angeles, California.*

DESIGN IDEA CUTS STEEL COSTS 15%

IN the 1700-ton framework above, continuous girders passing over columns are spliced at points of minimum stress between columns rather than at the columns. The construction, made possible at low cost by arc welding, permits use of smaller size girders, thus cutting steel requirements 15%.

The example shown is typical of how cost-minded architects and structural engineers are utilizing ultimate benefits of welded designs to lower construction costs. Through continuous framing, by eliminating splice plates, and taking advantage of low-cost shop fabricating methods, structural savings of 15% to 20% over riveting are common achievements. Furthermore, welded buildings provide more useable space because less height is required per story and greater floor area results from smaller beam and column sizes.

Fig. 2. Beam to column connection *on 11-story apartment, 1200-ton frame erected with 25% less steel. Engineers and Contractors: Byrne Organization, Inc., Washington, D. C.*

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Senate tightens mortgage terms, increases public housing units

Speedy Senate passage of a revised housing bill last week cleared the track for an early conference and compromise between the two houses of Congress on a modified Administration measure.

Public housing is the crux of the House-Senate contest over this year's law. Re-authorization of public housing was voted down by the House April 2 in readying its version of the bill. The Senate last week approved the Eisenhower program of 140,000 units in four years; fiscal 1954 through 1957.

Other sharp differences between the House and Senate versions can be more easily reconciled. The House passed its version before Eisenhower pulled the cork on the so-called housing scandals. The Senate amended the House-approved bill by adding language to prevent pocketing of windfall profits by sponsors of rental projects and to protect homeowners against shyster salesmen on home improvement loans.

On liberalized lending, the Senate went along part way with Administration proposals in the House-passed version of the bill. But Senate changes cut down somewhat the liberality of the new mortgage terms. Even so, the compromise version that Congress will enact into law is sure to authorize easier mortgage terms for housing.

Less critical than public housing as a point of disagreement between the two houses are their differences over the government's secondary mortgage market facility—the Federal National Mortgage Assn., better known as Fanny Mae. The House version would recharter Fanny Mae and eventually make it a privately owned corporation for purchase of FHA-insured and VA-guaranteed mortgages.

• **Fanny Mae as is**—But the Senate figured no elaborate new corporation was needed in the present easy money market. It continued Fanny Mae as is for another year, without giving her any additional authorization. Also, the Senate voted to create a voluntary home credit program—composed of lenders, builders and government representatives—as urged by the insurance companies and some other mortgage buyers. The Senate wants to give the voluntary plan a year's trial in easing mortgage credit in tight money areas.

• **Deal on housing**—Senate Republicans and Democrats got together on a neat deal to put through the Eisenhower public housing program. The Senate committee had recommended reauthorizing the original 1949 public housing program of 810,000 units That would have amounted to some 617,000 new units, as less than 200,000 have been started to date.

But Senator Maybank, ranking Democrat on the committee, and other southern senators changed their

How House and Senate differ on housing

Public housing	None in House version; Senate approved 140,000 units in four years
Secondary mortgage market	House voted government corporation; eventually to be privately owned, to replace Federal National Mortgage Assn., Senate would continue present Fanny Mae another year.
Houses for sale	House liberalized loan terms for new houses, approved equal terms for older homes; Senate was less liberal on new houses, kept present loan-to-value ratio for existing homes.
Apartment houses	Senate was less liberal than House in raising loan ceilings; Senate added requirements that builder certify actual costs, which would determine limits on loan and on rents.
Low-cost housing	Senate required down payments and shortened maturities on urban renewal housing for which House had approved 40-year, no-down-payment loans.
Smoke abatement	Senate added $5-million research program plus loans to business for air pollution equipment.
Home improvement loans	House approved larger amount and longer term; Senate retained present loan terms and made lender a coinsurer of loan to extent of 20 percent.

minds after the Supreme Court refused to review a California court's decision banning segregation in public housing. Maybank moved on the floor to kill the public housing authorization. Then the Majority Leader, Senator Knowland, offered the Administration proposal as a substitute. By getting it voted on without a roll call, the Republicans saved the Democrats the embarrassment of a recorded vote. The Eisenhower program went through, 66 to 16.

It seemed unlikely at the beginning of the week that the House could swallow whole the Senate's public housing authorization. The House had turned down the Administration program 21 to 176 in early April. A compromise on 35,000 units for one year—instead of 140,000 in four years—looked a good bet. The House had not voted on a one-year plan; it could approve that much without losing face.

• **Certifying actual costs**—Of other provisions added to the bill by the Senate, home builders object most strenuously to a requirement for certifying actual costs on all rental projects and some other housing. The requirement includes ordinary apartment construction, cooperative projects, military housing, defense housing and two new classifications that would be authorized by the bill—rehabilitation rental and low-income rental in urban renewal areas.

In particular, builders say that cost certification would hamper seriously the construction of ordinary apartment projects financed by FHA-insured loans. As they see it, the requirement would make a builder liable to charges of faulty cost certification long after completion of his project.

The Senate also stiffened the House-passed "warranty" provision for one- to four-family houses. It changed the word to "certification" and made the language read "the dwelling is constructed in conformity (instead of substantial conformity) with the plans and specifications."

Here is how the Senate curtailed more generous House-passed terms:

• On sales housing, cut down the increases in maximum loans to $18,000 instead of $20,000 for one and two-family houses, $24,000 instead of $27,500 for three-family, and $30,000 instead of $35,000 for four-family. Also, raised down payments by lowering the loan-to-value ratios to 95% of $8,000 (instead of $10,000) plus 75% of the excess. The Senate approved 30-year maturity for the loans.

• For older houses, eliminated

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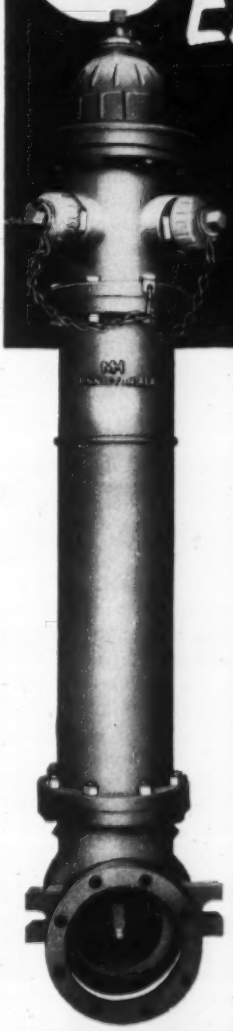

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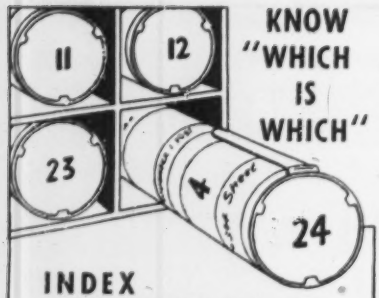

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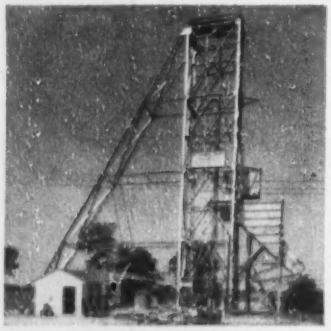

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equal terms on loan-to-value ratio, leaving it at 80% of appraised value. Reduced the 30-year loan maturity by one year for each of the first ten years after a house is completed.

• On home improvement loans, made the lender take 20% of the loss on each defaulted loan.

• For regular apartment construction, approved House-passed provisions raising mortgage amounts. For publicly supervised cooperative projects, raised the ceiling from $25 million to $50 million and added $1,000 per room in high cost areas where the project is part of an urban renewal.

• On rehabilitation housing, cut House-passed mortgage amounts and loan-value ratio to conform with action on sales housing. However, included extra $1,000 per room for rental housing in high cost areas. Restricted the low-cost housing program for families displaced by slum clearance by cutting the 100% mortgage loan to 95%—and to 90% for existing housing. Cut 40-year mortgage term to 30 years.

• Senate would permit FHA and VA to approve open-end mortgages, would require builder of one- or two-family house to give buyer written statement of FHA appraised value, tighten federal criminal code to prevent misuse of FHA in advertising or selling, give FHA authority to suspend builders or dealers.

Amendments offered by Senator Byrd and accepted by the Senate add some further tightening with regard to lender certification of the soundness of each loan, use of actual cost in any formula for rental or sales price, requirements for record keeping by lender, borrower and builder, and for submission of full specifications by any applicant for an insured loan.

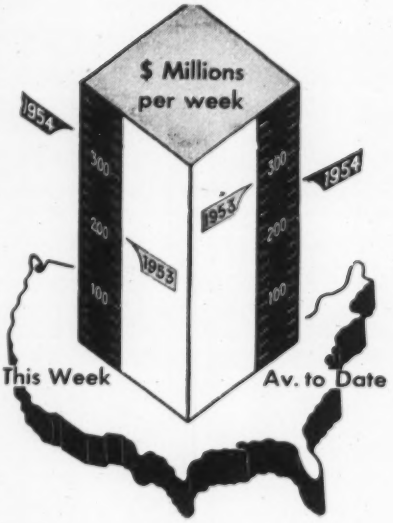
Whittle withdraws winning bid on Nashville project

Because of a $296,000 error, Whittle Construction Co., of Dallas, Tex., has withdrawn its $1,730,000 successful bid to build a 13,000-ft sewerage tunnel in Nashville. But the city of Nashville is refusing the corrected bid and will attempt to collect on Whittle's performance bond.

Bids were opened on the job May 11, but announcement of the award to Whittle was not made until May 19. Then the contractor discovered he had made a $296,000 error, and asked if he could correct it. Whittle would still have been low bidder. Paschen Contractors Inc., of Chicago, and Peter Kiewit Sons' Co., of Omaha, were $646,000 higher.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 23 wks 1954	1953	% chge
Federal	$41.4	$484.6	$687.7	−30
State and municipal	124.1	1,989.3	2,119.1	−6
Total pub.	165.5	2,473.9	2,806.8	−12
Total priv.	160.0	3,398.9	3,996.0	−15
U. S. total	**$325.5**	**$5,872.8**	**$6,802.8**	**−14**
Contracts by type of work				
Waterworks	$4.6	$103.4	$109.4	−5
Sewerage	7.1	161.8	174.6	−7
Bridges	15.2	167.7	260.2	−36
Highways	45.8	728.0	729.2	0
Earthwork, Waterways	8.9	123.3	171.0	−28
Buildings:				
Public, excl. hsg.	47.3	733.7	740.9	−1
Housg., pub.	0.8	86.0	251.2	−66
Housg., priv.	96.7	1,879.3	1,795.4	+5
Commercial	25.9	540.7	489.4	+10
Industrial	30.8	845.9	1,374.3	−38
Unclassified	42.4	503.0	707.2	−29
Total	**$325.5**	**$5,872.8**	**$6,802.8**	**−14**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,900; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)	Week of May 27 1954	Cumulative 22 Wks 1954	% chge 1953-54
Corporate securities	$82.7	$1,316.1	−28
State and municipal:			
All except housing	90.9	2,409.5	+37
Housing	...	42.6	−77
Federal loans	2.9	53.2	+5
Federal aid	...	55.0	...
Total non-federal	**$176.5**	**$3,876.4**	**+1**
Federal approps.:			
In U. S.	...	$56.0	...
Outside U. S.	...	4.6	...
Total new capital	**$176.5**	**$3,937.1**	**+3**

ENR indexes		Base years = 100 1913	1926	1949
Constr. cost	June '54	622.49	299.23	130.50
	May '54	618.69	297.40	129.70
Bldg. cost	June '54	440.12	237.92	125.11
	May '54	438.69	237.14	124.70
Volume	May '54	648	263	187
	April 54	517	210	149

NOTICE TO BIDDERS

SEALED BIDS will be received jointly by the Parish of Jefferson and the Parish of St. Tammany, State of Louisiana, at the Office of the Secretary of the Jefferson Parish Police Jury, in the Courthouse at Gretna Louisiana, until two (2:00) o'clock P. M., Central Standard Time, June 23, 1954, and immediately thereafter publicly opened and read, for the furnishing of all plant, labor, equipment, materials and other facilities, and all other things necessary and proper for and incidental to the construction of

(a) GREATER NEW ORLEANS EXPRESSWAY—Lake Pontchartrain Bridge, from Station 298 + 90 to Station 1570 + 68.5 including the substructures, superstructures, movable bascule spans, administration buildings, garages, toll booths, toll equipment, plazas, and all appurtenances; as described in plans and specifications prepared by Palmer and Baker, Inc., Consulting Engineers, and hereinafter referred to as Contract 65.

(b) GREATER NEW ORLEANS EXPRESSWAY—The Approaches—South Shore, Harlem Avenue—from Station 143 + 00 to Station 292 + 55.99, in Jefferson Parish, Louisiana, including bridges, drainage structures and ditches, and other improvements; as described in plans and specifications prepared by Palmer and Baker, Inc., Consulting Engineers, and hereinafter referred to as Contract 65-1.

(c) GREATER NEW ORLEANS EXPRESSWAY—The Approaches—North Shore—from Station 1570 + 68.5 to Stations 1664 + 23, 1714 + 72.87, and 117 + 08.95, to the east, north and west, respectively, in St. Tammany Parish, Louisiana, including bridges, drainage structures and ditches, and other improvements; as described in plans and specifications prepared by Palmer and Baker, Inc., Consulting Engineers, and hereinafter referred to as Contract 65-2.

Bids will be received only on all three foregoing items, namely, Contracts 65, 65-1 and 65-2, in combination. Bids on individual contracts or on any combination of two contracts will not be considered.

Plans and specifications may be examined at the aforesaid Office of the Secretary of the Jefferson Parish Police Jury, and also at the Office of the Secretary of the St. Tammany Parish Police Jury, in the Courthouse at Covington, Louisiana, and said plans and specifications may be examined and information obtained from Palmer and Baker, Inc., Room 427, National Bank of Commerce Building, New Orleans, La., or 957 Spring Hill Avenue, Mobile, Ala., (Post Office Box 346). Complete copies of the foregoing documents will be furnished to bona fide bidders upon a deposit of $250.00 per set for item (a), Contract 65; $100.00 per set for item (b), Contract 65-1; and $100.00 per set for item (c), Contract 65-2; respectively. The deposits, if a bid is made, will be remitted not later than thirty (30) days after the opening of bids, provided the documents are returned complete and in good condition.

Certified checks on a National Bank or a Louisiana State Bank in good standing and drawn to the order of "The Parish of Jefferson and the Parish of St. Tammany" in the following amounts must accompany each bid as a guarantee that the bidder, if successful, will enter into contract and make bond in accordance with the requirements of the specifications:

For item (a), Contract 65—$1,500,000.00;

For item (b), Contract 65-1—not less than five per cent (5%) of the total amount bid therefor; and

For item (c), Contract 65-2—not less than five per cent (5%) of the total amount bid therefor.

Bidder's bonds, Cashier's checks or currency will not be acceptable.

Attention is called to the fact that after bids are received hereunder revenue bonds will be offered for sale by said Parishes to finance the cost of the work, that the award of the work herein advertised will be contingent upon the sale and delivery of said revenue bonds, and that the obligations of said Parishes under the contracts thus awarded will be payable solely from the funds derived from the issuance and sale of such revenue bonds.

All bids shall be submitted in sealed envelopes bearing on the outside the name of the bidder, his address, and the designation of the work, "Greater New Orleans Expressway." If submitted by mail, the sealed envelope containing the bid, and marked as directed, shall be enclosed in another envelope addressed to:

Honorable Frank J. Deemer, Secretary, Jefferson Parish Police Jury.

and

Honorable L. L. Landon, Secretary, St. Tammany Parish Police Jury,
Post Office Box No. 109, Gretna, Louisiana.

The Parish of Jefferson and the Parish of St. Tammany reserve the right to reject any and all bids to waive informalities in any bid.

All bids will be retained by the Parish of Jefferson and the Parish of St. Tammany and none will be returned. No bids received later than the time specified for submission will be considered.

The Police Jury of the Parish of Jefferson and the Police Jury of the Parish of St. Tammany will meet in the Police Jury Room of the Courthouse at Gretna, Louisiana, on the date and at the time first hereinabove shown, and will then and there proceed to open and read said bids in joint public session.

For the
PARISH OF JEFFERSON, LOUISIANA

(s) FRANK J. DEEMER,
Secretary, Police Jury

For the
PARISH OF ST. TAMMANY, LOUISIANA

(s) L. L. LANDON,
Secretary, Police Jury

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: July 1, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 1st day of July 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Essex	FARC 54-73	Ticonderoga-Montcalm Landing, S. H. 8073 Proj. F-371(4)	2.33	Asp. Conc. Opt.	$12,000 Plans $10	$243,000.00
Essex	FARC 54-74	Whallonsburg-Essex, S. H. 8063 Essex-Willsboro, Pt. 1, S. H. 8128 Proj. F-4 7(8)	7.67	Asp. Conc. Opt.	$30,000 Plans $15	566,000.00
Saratoga	FARC 54-8	Schenectady County Line-Scotch Church, S. H. 1706 Scotch Church-Galway-Kimballs Corners, S. H. 1851 Proj. S-758(3)	8.27	Asp. Conc. Opt.	$30,000 Plans $25	530,000.00
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Herkimer	M 54-3	Lock 17-E Little Falls (Barge Canal)	....	Installing New Upper Lock Gate & Relining Gate Recess	$7,300 Plans $10	133,234.50
Herkimer	M 54-4	Lock 17-E Little Falls (Barge Canal)	0.16	Construction of Lower Guide Wall	$33,000 Plans $10	592,607.00
Madison and Oneida	M.T. 54-2	New York State Thruway—Mohawk Section—Subs. 1, 2, 3, 4, 5—(Onondaga-Madison Co. Line to 4± Miles West of Westmoreland Interchange)	24.10	Erection of 2.09 Miles of Cattle Fence at Various Locations	$900 Plans $10	15,000.00
Madison	M.T. 54-3	New York State Thruway—Mohawk Section—Sub. 2 (Canastota Gas Station-Restaurant Site, Type B)	....	Grading, Paving and Misc. Work	$9,000 Plans $10	161,000.00
DISTRICT No. 3, William Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Tompkins, Cortland, and Tioga	FARC 54-77	Dryden-Harford, S. H. 8016; Harford Mills-Dryden, Pt. 1, S. H. 1075; Harford, S. H. 379 and Richford-Harford Mills, S. H. 1452 Proj. S-63(3); F-427(8)	9.58	Asp. Conc. Opt.	$47,000 Plans $15	845,000.00
Seneca	FASSH 54-12	S. H. No. 273-Magee Proj. S-SG-284(3) Cont. #1	3.85	9" Cem. Conc. Pavt. 24' Wide	$35,000 Plans $10	603,000.00
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.						
Cattaraugus and Erie	FASSH 54-13 FARC 54-76	Ellicottville-Springville, Pts. 2 & 3 Springville Village, S. H. 989 Hamburg-Springville, S. H. 528 Proj. S-365(2); S-369(2)	10.07	Asp. Conc. Opt.=10.05 Mi. Misc. Work=0.02 Mi. 2 Closed Box Brs. 24' & 24' 1 Cont. Deck Truss Br. 650'	$147,000 Plans $50	2,690,000.00
Chautauqua	FARC 54-75	Sinclairville-Cassadaga, Pts. 1 & 2, S. H. 1012-1012A-8108 Pratt Corner-Sinclairville, S. H. 1471 Proj. S-796(3)	6.84	9" Two Course Cem. Conc. Pavt. 24' Wide=6.20 Mi. Asp. Conc. Opt.=0.60 Mi. Misc. Work=0.04 Mi. 1-Comp. I-Beam Br. 110.5' 1-Comp. I-Beam Hy. Sep. 123.7' 1-Conc. Slab Br. 24' 1-I-Beam Br. 33'	$90,000 Plans $25	1,600,000.00
Erie	FASS 54-11	Harlem Avenue C. R. 219 Proj. S-353(1)	0.21	Asp. Conc. Opt.=0.20 Mi. Misc. Work=0.01 Mi. Widening Exist. 259.4' Deck Girder	$17,000 Plans $10	309,000.00
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Building, Hornell, N. Y.						
Chemung and Tioga	R.C. 54-72	Br. No. 1, S. H. 5471; Br. No. 1A, S. H. 5215 and Br. No. 1, S. H. 1932	....	Cleaning & Painting 3 Bridges	$1,400 Plans $10	25,000.00
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, N. Y.						
Franklin, Jefferson, Lewis and St. Lawrence	R.C. 54-71	Br. No. 1, S. H. 5468; Br. No. 1, S. H. 428; Br. No. 1, S. H. 1165; Br. No. 1, S. H. 5332A; Br. No. 1, S. H. 1192; Br. No. 1, S. H. 735; Br. No. 2, S. H. 5509	....	Cleaning & Painting 7 Bridges	$1,400 Plans $10	24,000.00
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester	R.C. 54-70	Tarrytown-White Plains Pt. 1, S. H. 503	0.01	Reconstruction of Culvert & Misc. Work	$300 Plans $10	5,000.00
Westchester	WS #2-W	Access Road to Weighing Station No. 2 Adjacent to Port Chester Village, S. H. 5719	0.10	Asp. Conc. Opt. & Misc. Work	$1,000 Plans $10	19,000.00
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I., N. Y.						
Bronx	N.E.T. 54-1	New York State Thruway—New England Section (Cont. 1A Demolition)	2.33	Demolition of Buildings	$700 Plans $10	12,000.00
Bronx	FAMDE 54-5	Major Deegan Expressway Extension Cont. 5A Proj. UI-1082(17)	(1.0 Hwy.) (3.12 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wid =2.28 Mi. Sheet Asph.=1.44 Mi. Asp. Conc. Opt.=0.33 Mi. Granite Block=0.07 Mi. Hy. Sep. Comp. I-Beam 160' Hy. Sep. Rigid Frame 44.3'	$180,000 Plans $50	3,182,000.00

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

R. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: June 24, 1954

Contracts No. 216, No. 216A and No. 216B Bridges

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:
CONTRACTS NO. 216, NO. 216A and NO. 216B
BRIDGES
at the offices of the Authority, 17 Bishop Street, Portland, Maine until 10:00 A.M. Eastern Standard Time, on June 24, 1954 at which time and place the Proposals will be publicly opened and read.

The work will be let either (a) under a single contract, Contract No. 216, which includes the construction of eight bridges along the route of the Maine Turnpike Extension between Mile 99 in the Town of West Gardiner and Mile 106 in the City of Hallowell, or (b) under two separate contracts, Contract No. 216A which includes four of the above mentioned eight bridges, and Contract No. 216B which includes the remaining four bridges. Such bridge construction will include the erection of the steel superstructures, which will be fabricated and delivered FOB cars at Brunswick, Maine, by others.

The principal items of work for Contracts Nos. 216A, 216B and 216 include:

	Contract No. 216A	Contract No. 216B	Contract No. 216
Structural Excavation—Earth, Cubic Yards	4,442	2,294	6,736
Reinforcing Steel Bars, Pounds	429,665	314,339	744,004
Concrete in Piers and Abutments, Cubic Yards	2,792	1,628	4,420
Concrete in Superstructures, Cubic Yards	879	879	1,758
Driving Steel H-Piles, Linear Feet	1,290	2,610	3,900
Erection of Steel Structures, Pounds	706,119	598,100	1,304,219
Metal Handrail on Concrete Parapets, Linear Feet	1,607	1,782	3,389

Plans and contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority at the above address and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., and may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Twenty-five Dollars ($25.00) for each set of Contract No. 216 covering the entire Project. The Plans and contract documents need not be returned and the payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Total Amount in the Proposal but not less than $500.00 nor more than $200,000.00.

If a bidder submits a Proposal for Contract No. 216, as well as a Proposal for Contract No. 216A and/or Contract No. 216B, one check based on the Total Amount in the Proposal for Contract No. 216 will be sufficient.

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must be enclosed in the sealed special addressed envelopes provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman

Portland, Maine
June 3, 1954

OFFICIAL PROPOSALS

Bids: June 15, 1954

Electric Lighting Equipment Contract 358

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, June 15, 1954, for Contract 358, for furnishing, delivering, installing and testing electric lighting equipment, complete in every respect, for the Rondout and West Branch effluent chambers, West Branch influent chamber, Kensico East influent chamber and coagulating plant, drainage chambers at Shafts 6, 13 and 23, and the water sampling station at Shafts 19 of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of ten thousand dollars ($10,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: June 30, 1954

Construction of Cargo Building

SOUTH JERSEY PORT COMMISSION
NOTICE TO CONTRACTORS
BIDS FOR CONSTRUCTION OF CARGO BUILDING "C"

Sealed proposals will be received by the South Jersey Port Commission on Wednesday, June 30, 1954, at 11.00 a.m. Eastern Daylight Saving Time at its office, foot of Beckett Street, Camden, New Jersey, for the Construction of Cargo Building "C" at Camden Marine Terminals, Camden, New Jersey.

Separate sealed proposals will be received for all of the following branches of work:

I. General Construction
II. Structural Steel and Miscellaneous Iron
III. Plumbing System
IV. Heating and Ventilating Systems
V. Electrical System
VI. Fire Protection System

The right to reject any and all bids is reserved.

Only bidders who qualify according to the Laws of the State of New Jersey with the South Jersey Port Commission will be eligible.

Plans and specifications will be furnished beginning June 11, 1954, upon application at the office of the Commission, upon deposit of the sum of Fifty Dollars ($50.00) which will be refunded if the plans and specifications are returned in good condition within one week after the date upon which bids are received.

Each proposal must be accompanied by a certified check, drawn to the order of the South Jersey Port Commission, for an amount equal to at least five per centum (5%) of the amount of the bid.

The successful bidder, after the contract is awarded, will be required to furnish a satisfactory surety bond in the full amount of the contract price to guarantee the faithful performance of the contract and the payment of labor, materials and sub-contract work.

By order of
SOUTH JERSEY PORT COMMISSION
Henry W. Peterson, Secretary.

Dated: June 2, 1954.

OFFICIAL PROPOSALS

Bids: June 22, 1954

Highway Lighting Installation

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

HIGHWAY LIGHTING INSTALLATION ROUTE 1 (1927), RT. U. S. 9W (1953), SEC. 6-E, and PALISADES INTERSTATE PARKWAY, SEC. 2-N

Highway Lighting Installation, Route 1 (1927) Route U. S. 9W (1953), Section 6-E, from Linwood Avenue to Lemoine Avenue and Connections to Palisades Interstate Parkway; and Palisades Interstate Parkway, Section 2-N, from Fort Lee Bridge Plaza to the northerly Borough line of Fort Lee and Overpass at Allison Park Road, Boroughs of Fort Lee and Englewood Cliff, Bergen County. The principal items of work are:

Estimated:
11,799 lin. ft. Trenching & Backfill
22,550 lin. ft. Primary Cable 7500 Volt
47—Red Cedar Lighting Standards
51—Lighting Standards Aluminum
51—Standard Foundations
47—Combination Foundation & Junction Boxes
120 cu. yds. Rock Excavation

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 22, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4182) will be received at Winters, California, until July 7, 1954, for furnishing labor and materials for earthwork, structures, and surfacing, relocation of California State Highway No. 6 (Sign Route 28), Monticello Dam to Capell Valley, Monticello Reservoir, Solano Project, California. Location near Winters, California, in Yolo, Napa, and Solano Counties. Principal items are: Excavation, 1,700,000 cu. yds.; rock slope protection, 22,000 cu yds.; furnishing and laying reinforced concrete pipe, 374 lin. ft.; furnishing and laying corrugated metal pipe, 13,690 lin. ft.; furnishing and placing reinforcement bars, 24,000 lbs.; untreated rock base, 84,500 tons; paving asphalt for plant mixed surfacing, 1,125 tons; mineral aggregate, 22,500 tons; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, Winters, California; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: July 8, 1954

Pennsylvania Turnpike Commission
Harrisburg, Pennsylvania
New Jersey Turnpike Authority
New Brunswick, New Jersey

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission and the New Jersey Turnpike Authority, acting in conjunction as specified in the Proposal Documents, until 10:00 a.m., Eastern Daylight Saving Time, July 8, 1954, for Contract PN4 in connection with the construction of the superstructure of the Delaware River Turnpike Bridge planned as a connection between the Pennsylvania and New Jersey Turnpikes. This Contract will include the construction of fourteen girder spans, each about 124 feet long; fourteen deck truss spans, ranging from about 215 feet to 269 feet; and a main river crossing, including two end spans each 341 feet long and a central span 682 feet long.

The principal items of work include:

Structural Carbon Steel	8,500 tons
Structural Silicon Steel	11,000 tons
Steel Castings	95 tons
Bridge Rope Suspenders	1,800 lineal feet
Class A Concrete	13,000 cubic yards
Reinforcement Bars	1,800 tons
Parapet Railing	13,400 lineal feet

All of the work is located in Bucks County, Pennsylvania, or Burlington County, New Jersey.

Proposals will be received at the Administration Building of the New Jersey Turnpike Authority, New Brunswick, New Jersey, and immediately after the hour for closing will be publicly opened and read aloud.

Proposal Documents may be examined during office hours after June 15, 1954, at the office of the Pennsylvania Turnpike Commission, 11 North Fourth Street, Harrisburg, Pennsylvania, or at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey. Proposal Documents will be furnished upon payment of fifty dollars ($50.00) for each set. No refund will be made.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance, Secretary-Treasurer
NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
June 10, 1954

Bids: June 22, 1954

Construction of Road

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

BAY SHORE ROAD

Construction of Bay Shore Road from Fishing Creek Road to Fulling Mill Road, Lower Township, Cape May County, Federal Aid Secondary Project No. S-188(1). Length 1.622 miles. **The principal items** of construction are:

Estimated:
7,299 cu. yds. Roadway Excavation
26,402 sq. yds. 6" Gravel Foundation
2,907 tons Bituminous Concrete
16,260 sq. yds. 7" Gravel Shoulders
4,588 lin. ft. Rein. Conc. Pipe

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, June 22, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 2602 Pacific Avenue, Wildwood, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for **each set of plans** upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: July 7, 1954

New Jersey Turnpike Authority

CONTRACTS NO'S. GR-16A, GR-16B, GR-16C, GR-16D and GR-16E

Sealed proposals are invited for Contracts No's. GR-16A, GR-16B, GR-16C, GR-16D and GR-16E which involve respectively the general construction, the plumbing and drainage, the heating and ventilating, the electrical work and structural steel, miscellaneous iron and metal work in connection with the completion of a Maintenance Building for Maintenance Division No. 6 located on the New Jersey Turnpike in Secaucus, Hudson County, New Jersey.

Sealed proposals will be received at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, on the morning of July 7, 1954, until 11:00 A.M., Eastern Daylight Saving Time, at which time and place said proposals will be publicly opened and read.

The receipt and opening of proposals are subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority.

Contract documents may be examined during office hours after June 10, 1954, at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey. Contract documents will be furnished upon deposit of Fifteen Dollars ($15.00) for each set, upon application to the Authority. The deposit will be refunded if the contract documents are returned in good condtion to the Authority within fifteen (15) days after receipt of proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman
June 10, 1954

Bids: July 15, 1954

Construction of Irrigation System

PUERTO RICO WATER RESOURCES AUTHORITY
SAN JUAN, PUERTO RICO

Commonwealth of Puerto Rico, PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO. Sealed proposals will be received at San Juan, Puerto Rico until 2:00 o'clock P.M., July 15, 1954 for the construction of earthwork, canal lining, and structures from station 400+00 to station 803+00 of main canal, including approximately 210,000 cu yd excavation, 88,000 sq yd canal lining, 2,850 cu yd concrete in structures, 2,000 lin ft various size concrete pipe, weirs, gates, etc. The work covers the second stage of Lajas Valley irrigation system in the Southwestern area of Puerto Rico near the towns of Yauco and Lajas.

Plans, Specifications, and Contract Documents may be obtained at the office of the Purchasing Officer, Puerto Rico Water Resources Authority, San Juan, Puerto Rico upon deposit of one hundred dollars ($100.00) in cash, money order or certified check payable to the Puerto Rico Water Resources Authority. Deposit will be returned in full upon return of the plans and specifications within twenty (20) days after the opening of the bids.

PHILADELPHIA, PENNA.
PROCUREMENT DEPARTMENT
WATER DEPARTMENT

Sealed proposals will be received in Room 313, City Hall Annex, until 2:30 P.M., D.S.T., Tuesday, July 20, 1954, and opened at that time in Room 313, City Hall Annex, Philadelphia, Pennsylvania, for BID NO. 2196—CONTRACT NO. SD-178-SW.

CENTRAL SCHUYLKILL EAST SIDE INTERCEPTING SEWER
PRINCIPAL ITEMS OF WORK

689 feet of 7'0" diameter concrete sewer in tunnel (rock and earth).
2002 feet of 6'9" diameter concrete sewer in tunnel (rock and earth).
2088 feet of 5'6" diameter concrete sewer in tunnel (rock and earth).

Proposal forms, questionnaires and specifications may be obtained in Room 1131, City Hall Annex. Blueprints of plans may be obtained at bidder's expense, directly from the Keystone Blue Paper Company, 51 North 13th Street, Philadelphia, Pennsylvania.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1106 City Hall Annex, Philadelphia 7, Pennsylvania, at least one (1) week prior to the date of opening bids.

Each proposal must be accompanied by security in form and amount as set forth in the proposal form.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4188) will be received at Yuma, Arizona, until July 13, 1954, for furnishing labor and materials for earthwork, concrete lateral lining, and structures, Unit 2, Wellton Distribution System, Wellton-Mohawk Division, Gila Project. Location: vicinity of Wellton, Yuma County, Arizona. Principal items are: 864,300 cu. yds. excavation for laterals, channels and dikes, and structures; 200,000 sq. yds. trimming earth foundations for concrete lining; 11,135 cu. yds. concrete in unreinforced concrete lateral lining, 2 and 2½ inches thick; 1,710 cu. yds. concrete in structures; 8,860 lin. ft. furnishing and laying reinforced-concrete culvert pipe, HC-50 pressure pipe, and HE-50 pressure pipe, various sizes; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, Yuma, Arizona; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

CONTRACTORS WATCH THIS SECTION
for New Projects
Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

YOUNG ARCHITECT or Engineer design and architectural supervision of construction of store buildings. Degree and 5 years experience. Location Southeast U. S. Considerable traveling. Good future. P-2810, Engineering News-Record.

PLANT SUPERINTENDENT wanted for old established structural precast concrete Plant. Preferably with Engineering background. Please submit complete resume stating experience, salary required and date available to P-2395, Engineering News-Record.

EXPERIENCED ESTIMATOR and Chief Engineer between the ages of 32 and 42, to make quantity take-offs, help price, buy, expedite and do some field supervision. All our work is competitive. We specialize in industrial, commercial and public works. Only experienced and high-grade men need apply. Permanent job for the right man. Excellent salary and bonus. Office located in Ohio. Send qualifications, experience and photograph, if available. P-2847, Engineering News-Record.

BRIDGE—HIGHWAY Engineers—Designers—Draftsmen. For work on bridges, expressways and turnpikes. Location Midwest. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include education, experience, reference and salary expected in application letter. P-2109, Engineering News-Record.

PROJECT MANAGER: Large expressway project in Maryland. Engineer with extensive bridge and highway experience to manage office, design and production of plans for bridges, interchanges and highways. Furnish qualifications, salary expected and availability. P-2864, Engineering News-Record.

EXPERIENCED STRUCTURAL Engineer for Design and Estimating Industrial type Buildings. Write Allied Steel Products Corporation, P. O. Box 6168, Tulsa, Oklahoma.

EXPERIENCED STRUCTURAL Steel Detailers and Checkers. Write Allied Steel Products Corporation, P. O. Box 6168, Tulsa, Oklahoma.

FOREMEN FOR Bridge Construction. Pile-driving, concrete, cofferdams, structural steel. Well established Southern firm adding to permanent organization. State age, salary expected, education, availability, give detailed resume experience and list references. P-2879, Engineering News-Record.

CHIEF ENGINEER for general contractor operating Southern states all types heavy construction including highways, tunnels, bridges, foundations, piledriving, railroad, marine work, earthfill dams, bituminous and concrete paving, utilities, etc. Assume responsibility estimating, purchasing, cost control, subcontracts, general field supervision. State age, education, salary expected, experience, references, availability, all in detail first letter to Box P-2880, Engineering News-Record.

WANTED: Instructor of Engineering Drawing and descriptive geometry. Salary up to $4,700 for 9 month period and assistant professorship for qualified person. M. E. graduate preferred. Dept. of Engr. Drawing, University of North Dakota, Grand Forks, North Dakota.

WANTED, ENGINEERS, competent and experienced in design and supervision of construction as resident engineers on water works, sewer systems, sewage and water treatment. State experience, when available, salary requirements, references. Box P-2893, Engineering News-Record.

WANTED BY long established Consulting Engineer the following men for permanent positions: Bridge Designer with at least 5 years experience in both steel and reinforced concrete. Structural Engineer, recent graduate with good theoretical knowledge. Highway Engineer, experienced in interchange design. P-2913, Engineering News-Record.

(Continued on the following page)

BRIDGE ENGINEERS
AND SPECIFICATION WRITERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Specification Writers—With design and field experience for writing specifications for steel bridges, concrete structures, and highway construction.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street **New York 5, N. Y.**

STRUCTURAL
DETAILERS
CHECKERS

Must be experienced, ideal working conditions, Air-Conditioned Office, Employees' Benefits. Vacation with Pay — Salary Commensurate With Ability.

Housing Available—

CONSOLIDATED WESTERN STEEL
BOX 341 **ORANGE, TEX.**

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Experience required in highway and structural design. Excellent opportunity for Engineers qualified to design modern expressways and bridges. Location in Harrisburg, Penna. with excellent living conditions. Include experience and salary requirements in first letter.

GANNETT FLEMING
CORDDRY & CARPENTER, Inc.
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Experienced in custom millwork for commercial and residential work, also offsite house fabrication. Send recent photo if available, past experience and salary expected.

ACME BUILDING MATERIALS, INC.
5235 Winthrop Avenue, Indianapolis, Ind.

QUANTITY SURVEY TAKE-OFF MAN

Must be experienced in excavation, concrete, masonry, and carpentry take-off, for all types of public, commercial and industrial buildings. Reply giving age, education, experience, salary desired. Milwaukee, Wisconsin.

P-2860, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Don't forget the
BOX NUMBER

When answering the classified advertisements in this magazine don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

CIVIL ENGINEERS—A municipality in the New Jersey metropolitan area has the following positions open:

Junior Engineer, Grade 2 (Instrumentman and Inspector—Young graduate engineer preferred.

Junior Engineer, Grade 1 (Party Chief)—Surveys and construction stake-out sewers, roads and other construction.

Senior Engineer 2—Design, estimating and special studies—all types of municipal engineering. N. J. Professional Engineer's License required.

Assistant Building Inspector—Experience in building construction. Engineering degree not required.

State Pension Plan. Good opportunity for advancement. State education, experience and salary desired. Address all replies to

P-2967, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Foreign Service

Graduate Chemical, Mechanical, Electrical & Construction Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of construction, estimating materials and cost control, planning and refinery process work. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

Arabian American Oil Company
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Man with up-to-date experience in handling medium size and large heavy construction projects in the New York area. The man we want must have references to demonstrate that he has recently run jobs (not cost plus or fee) either in highway, subway or sewer construction.

Reply giving age, detailed resume of experience and salary required.

P-2974, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Send NEW ADVERTISEMENTS: To New York Office W. 42nd St., N. Y. 36 for June 24th issue closing June 14th

POSITIONS VACANT

(Continued from preceding page)

MALE HELP Wanted: Experienced Structural Draftsman. Personnel—Box 1087, Charlotte, 1, N. C.

GENERAL SUPERINTENDENT for company doing heavy, municipal, utility, etc. in vicinity of city of 150,000. Must be able to handle overall management of work. Good opportunity, permanent for right man. Give salary expected, age, family status, thorough resume of experience. Reply Box 3041, Evansville, Indiana.

EXPERIENCED STRUCTURAL engineer and detailer for permanent position. Salary dependent on qualifications. Reply outlining experience. Augusta Iron & Steel Works, Inc., 636 11th Street, Augusta, Georgia.

MUNICIPAL ENGINEER: C.E. or L.S., as Assistant Engineer, Public Works Department, New York metropolitan area. Responsible charge of field work and drafting room. Submit full personal education and experience resume to Box P-2953, Engineering News-Record.

SALES ENGINEER—We need experienced concrete or concrete construction engineer. Must have sales ability and potential to organize and head branch office. Salary, expenses and commission. Various locations. Considerable traveling. Interesting, long term, independent position. Sika Chemical Corporation, Passaic, New Jersey.

GRADUATE CIVIL or structural engineer with a minimum of 3 years recent building construction experience wanted for supervision of new construction on large midwest university campus. This is a good opportunity for a permanent connection for a younger man with ability. Please give summary of education, experience and salary requirements in reply. P-2958, Engineering News-Record.

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SALES ENGINEER — Rochester, New York and Pittsburgh, Pennsylvania territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-2289, Engineering News-Record.

SALESMEN WANTED—Crane, shovel, and front end loader experience desirable. North Jersey territory. Salary open. Reply SW-2924, Engineering News-Record.

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POSITIONS WANTED

PROJECT MANAGER or Contractor's executive available. Broad experience heavy construction and buildings. Thorough organizer. Sound knowledge of field supervision, estimating, cost control, purchasing, subcontracts. New York preferred. PW-2942, Engineering News-Record.

POSITIONS WANTED

BITUMINOUS PAVING and grading Superintendent. College and ten years experience. Ambitious, aggressive, desires responsibility and large work volume. PW-2941, Engineering News-Record.

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MECHANICAL SUPT., Mechanical inspector or master mechanic. Twenty-five years' experience with Erection, Repair, Maintenance of heavy industrial equipment in Power Plants, Pumping Stations, Industrial Buildings, Supervising Installation, Testing Air Conditioning, Freon Refrigeration, Steam Boilers, Steam Distribution, P.O.L. Systems, Heating, Plumbing, Diesel Engine Driven Generators. Available now. PW-2753, Engineering News-Record.

PROJECT SUPERINTENDENT capable of estimating handling sub contractors and running entire project. Age 37. 18 years' experience will travel minimum salary $800.00 per month. PW-2894, Engineering News-Record.

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POSITIONS WANTED

CONSTRUCTION SAFETY direction or engineering; 35, college trained, single, in fourth year of safety work having just completed two years on largest construction job in world, relocate United States or overseas. PW-2858, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and Engineer with vast experience in housing projects, 22 years in construction. Man well qualified in cast reduction methods desires connection with firm building housing projects on small salary and bonus computed from cost saving. PW-2940, Engineering News Record.

CIVIL ENGINEER — Age 25 — Experience in heavy construction desires position with Gen'l Contractor in Philadelphia area. PW-2965, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES ENGINEER now contacting General and Building Contractors in Southeast desires lines. SA-2874, Engineering News-Record.

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Grain Horsehide Work Glove Gauntlets slightly discolored. $14 doz. new, sacrifice $5 doz. Finecraft, 175 5th Ave., NYC.

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FS-2946, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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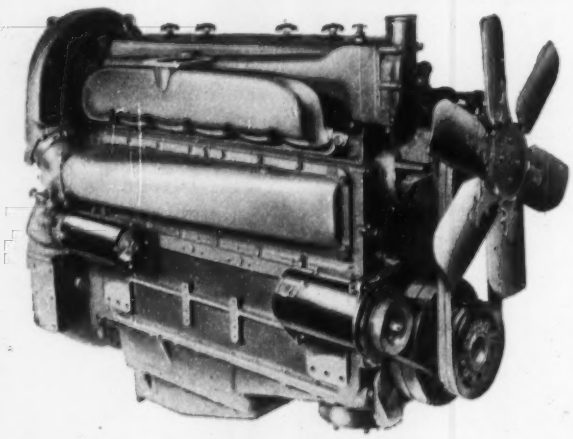

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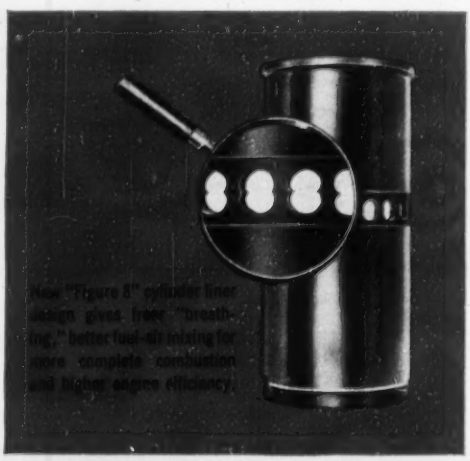
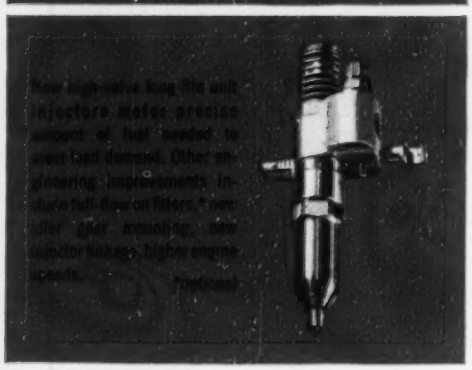
Get full details on the new, more powerful GM Series 110 Diesels from your GM Diesel distributor. Have him show you that GM Diesels cost less to buy, less to run and less to maintain than any other Diesel.



New "Figure 8" cylinder liner design gives freer "breathing," better fuel-air mixing for more complete combustion and higher engine efficiency.



New high-valve lift unit injectors meter precise amount of fuel needed to meet load demand. Other engineering improvements include full-flow oil filters, new idler gear mounting, new injector linkage, higher engine speeds. Optional.

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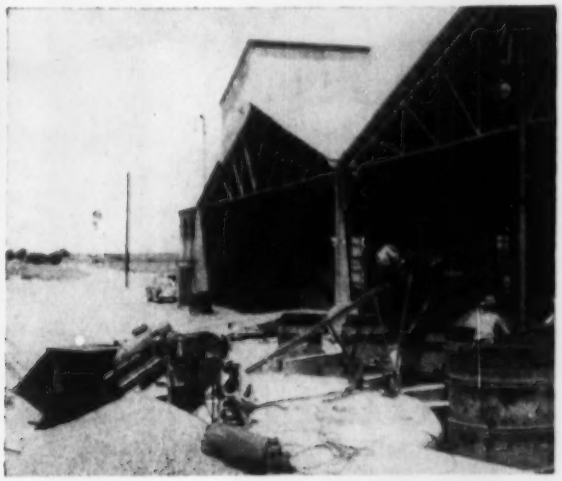


PORTABLE CASTING PLANT has concrete conveyor pivoted at lower end so that it can be swung over forms in the pit.

Concrete pipe cast "in the ditch"

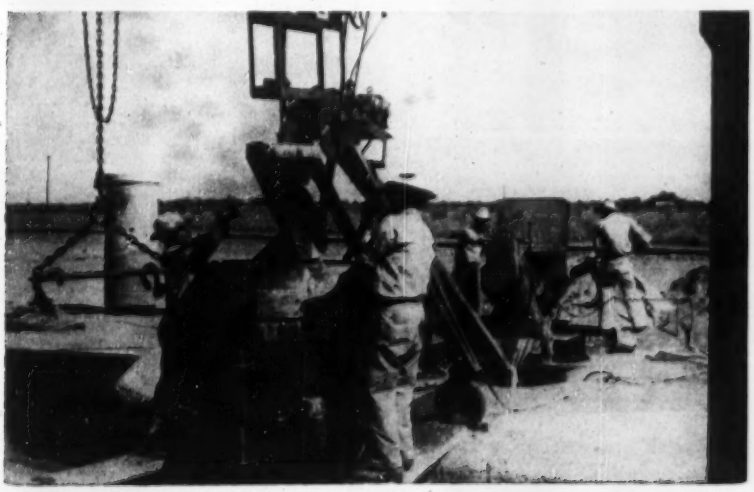
New process produces five pipes per hour with one set of forms—costs reduced, quality is improved

An old concrete pipe manufacturing process has been given a new twist to produce large pipe in a fraction of the time normally required. Essentially an agitation procedure, the new method uses no-slump dry concrete and a Vibromac vibrator that delivers 3,000 1¼-ton impacts per minute. Curing is accomplished with watersoaked burlap, and the resultant pipe has registered compressive load resistance considerably above ASTM specifications.

The manufacturing cycle for a Vibromac-made pipe depends largely on the handling equipment used, and on the distance between the pouring position and the location of the curing position of the pipe. In an average layout 3 min are allowed for pouring and compacting and 7 to 9 min for handling from pouring location, stripping and relocating the form. This 10 or 12-min cycle time compares with 24 to 48 hr using 3 to 5-in.

(*Continued on page 126*)

WOODEN base cribbing, 6x6 in., is used to absorb some of the vibration.



REVOLVING DISCHARGE HEAD on upper end of conveyor is powered by ¼-hp electric motor. Loading hopper is used on outside form to minimize spillage.

CONE-SHAPED shuffle plate is placed on core to distribute poured concrete.

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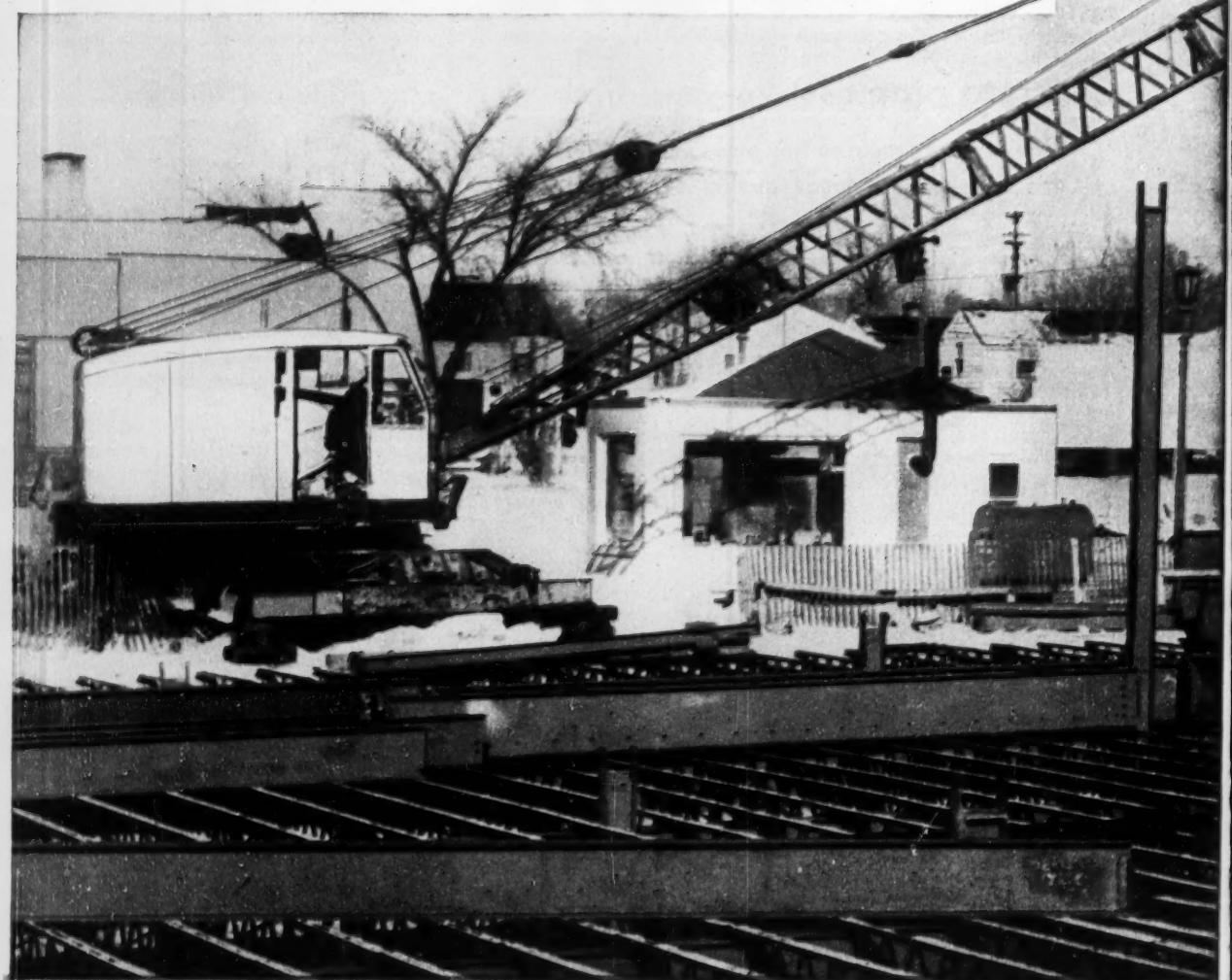

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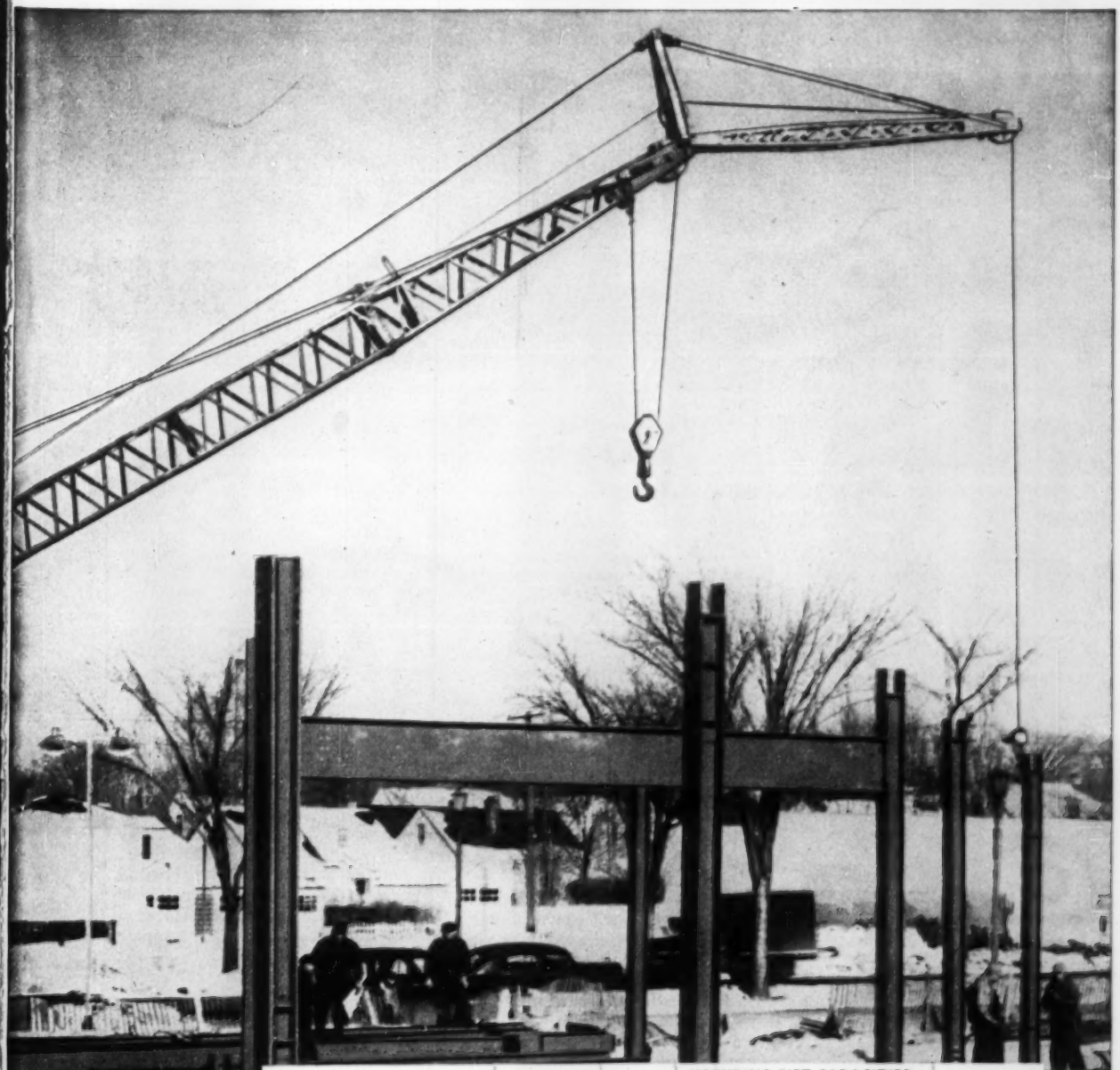

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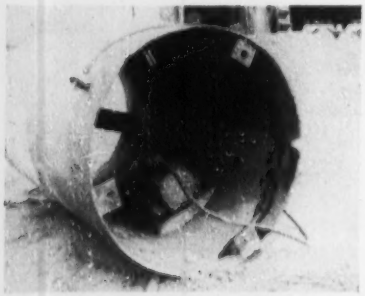
205 ON RUBBER	½-Yd.	30,000 lbs.	25-foot boom at 12-ft. radius	
304 CRAWLER	¾-Yd.	27,800 lbs.	35-foot boom at 12-ft. radius	
304 ON RUBBER	¾-Yd.	50,000 lbs.	30-foot boom at 10-ft. radius	
605 CRAWLER	1½-Yds.	72,300 lbs.	50-foot boom at 12-ft. radius	
1005 CRAWLER	2½-Yds.	159,000 lbs.	50-foot boom at 12-ft. radius	

B329 REV.-

CONTINUOUS MIXER is available to supply the quantities of no-slump concrete required. A German-designed Hercules is shown.

VIBROMAC VIBRATORS are shown in position chained around form jackets.



VIBRATOR attached to core can be used on larger sizes or where required.

FAST CAST PIPE has smooth jointing surfaces. Tylox gasket is shown here.

slump and usual 12,000 vpm vibrators.

The 3-min pouring time is reported ample for 6 or 8-ft long pipe up to 42-in. inside diameter. Tests have shown that high pouring speed is advantageous to the keying of coarse and fine aggregates in the finished pipe. To make fast pouring possible, an Edinburg, Tex., installation uses a European-made Hercules continuous concrete mixer. This unit delivers up to 14 cu yds per hour—sufficient to pour the largest size pipe in a few minutes time. A continuous batching mixer, capable of delivering 20 cu ft of concrete every three min, is also available.

Concrete is delivered to the form by means of a cleated conveyor and a swiveling discharge head. On-the-job casting requires equipment sufficiently mobile to follow pipe laying progress.

In wet weather or where the trench is wet most of the time, it is generally more desirable to establish a covered, central casting plant. An arc-shaped casting pit is dug and the sides and bottom cemented to prevent erosion and seepage. The arc shape is chosen to permit the forward end of the conveyor to be wheel-mounted and therefore swung to various pouring positions over the pit; the mixer remains stationary in this setup. Dimensions of the pit are, of course, determined by the equipment used and the size of pipe to be cast.

In manufacturing the pipe, a steel seat is bolted to vibration-absorbing wooden cribbing. The seat holds a pallet ring that, in turn, holds the core of the pipe form. The outside jackets are assembled around the pallet ring and the Vibromac vibrators affixed.

The vibrators are tied together by lengths of heavy chain or steel bands tensioned by a special device to hold the vibrators in close contact with the form.

A cone-shaped shuffling plate is set onto the core and a loading hopper is attached to the pouring end of the outside form. As soon as the proper mix is being delivered at the discharge end of the conveyor, it is swung over the pipe form. The discharge head is swiveled so that concrete can be delivered evenly over the circumference of the forming orifice. Vibrating and pouring are done simultaneously so that at the end of pouring—2 or 3 min—the pipe is finished. The core form can then be removed and the remaining assembly of pipe and outside jacket hoisted and moved to a curing area. The outside form can then be stripped and wet burlap or straw placed over the green pipe. The pipe can also be spray cured if desired.

The company has tested non-reinforced 30-in. irrigation pipe made by this method. ASTM specification C-75 for steel wire reinforced concrete pipe 30-in. x 6 ft. is 16,200 lb—the Vibromac-made pipe registered 1,600 lb more compressive load resistance without reinforcement.

The Vibromac vibrator operates from a 220-v, 3-phase power source at 3,000 vpm; amplitude or impact is variable from 500 to 3,000 lb. Price is $600.

Fastening brackets and steel conductor bands are available for any size forms and are priced from $89 to $98, depending on which of the three adjustable sizes is ordered. The revolving distributor for the concrete conveyor is available for $298 complete with ¼ hp electric motor.

The Speed Mixer, continuous batching plant is priced at $4,800—$1,000 more than the Hercules continuous type. Electric controls for the mixers, vibrators and conveyor sell for about $200.

Pipe forms and accessories are priced according to size, but, for example, equipment for manufacturing 48 in. x 6 ft rubber gasket joint, tongue and groove pipe would sell for about $1,400. The total equipment for turning out 35 to 40 such pipes a day would then cost approximately $7,500. GEORGE W. HOFFMAN CO., P.O. Box 452, SIOUX CITY, IOWA.

300-ton "squeeze play" eliminates hand splicing

Anyone who has watched the complicated hand motions of a skilled worker splicing wire rope can appreciate the value of a new mechanical

(*Continued on page 128*)

HARD-FACING TRICKS that pay off with Longer Equipment Life

Life of almost all wearing parts—on tractors, bulldozers, power shovels and other heavy construction equipment can be doubled by Stoody hard-facing. Maximum increases always result when correct procedures are employed.

WHEN REBUILDING WORN DRIVE TUMBLERS

First determine the base metal. Rebuild manganese steel with Stoody Nickel or Moly Manganese. If tumbler is high carbon steel, rebuild with Stoody Build-Up. Bring back to final size with an overlay of Stoody 1027—chosen because of good wear resistance on metal to metal friction and high impact strength. (We're often asked if a hard-faced part won't cause faster wear on the mating element. Answer is no. Because hard-faced parts retain original shape far longer, they mate more perfectly with opposite members, reducing wear on each. Also, since a lower coefficient of friction exists between alloy and steel, life of both parts is actually extended.)

WHERE TO HARD-FACE

Note the wear pattern on your old drive tumblers and hard-face accordingly. Usual points are on tops and pressure faces of lugs; occasionally along tumbler periphery. NOTE: It is essential to keep both faces of lugs aligned on each side of the tumbler to equalize wear. Make a template for the purpose.

SIMPLIFYING THE OPERATION

Faster, easier hard-facing is possible if tumbler is mounted on a jig and rotated for down-hand welding, although tumblers can, if necessary, be touched up while still on the shovel.

This and other hard-facing applications are fully described in the Stoody Hard-Facing Guidebook.

Ask your Stoody Dealer for a copy (see the yellow pages of your phone book) or write direct.

STOODY COMPANY
11976 East Slauson Avenue
Whittier, California

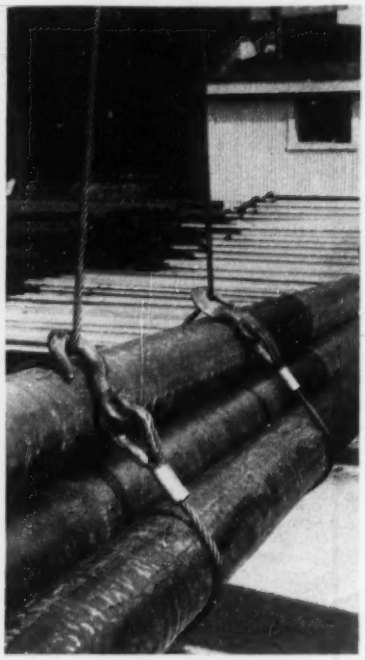
system that uses an aluminum clamp or sleeve and a 300-ton capacity motor-operated hydraulic press.

To make a splice, the wire rope is measured, cut and inserted in the clamp—a short, oval-sectioned piece of non-corrosive aluminum alloy tubing. The clamp is then squeezed or crimped around the wire. The pressed joint is said to be formed without damage to the individual wires. Instead, it is reported, the clamp metal actually flows—without preheating—into the space between the wires in the strands and between the strands themselves.

Used for splicing eyes—with or without thimbles—the device is said to save about 85 per cent of the rope length that would be necessary for a hand splice. In addition, the manufacturer says that the new system increases production from 6 or 7 splices per hour by a skilled worker to 20 or 30 per hour, and no special skill is required.

The clamps can be used with any type of wire or center, including fiber, and form a waterproof splice.

The company is leasing special 300-ton presses to apply the new type of terminal to wire rope up to and including ¾-in. dia. A complete set of dies for different rope diameters goes with each press. Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh, Pa.



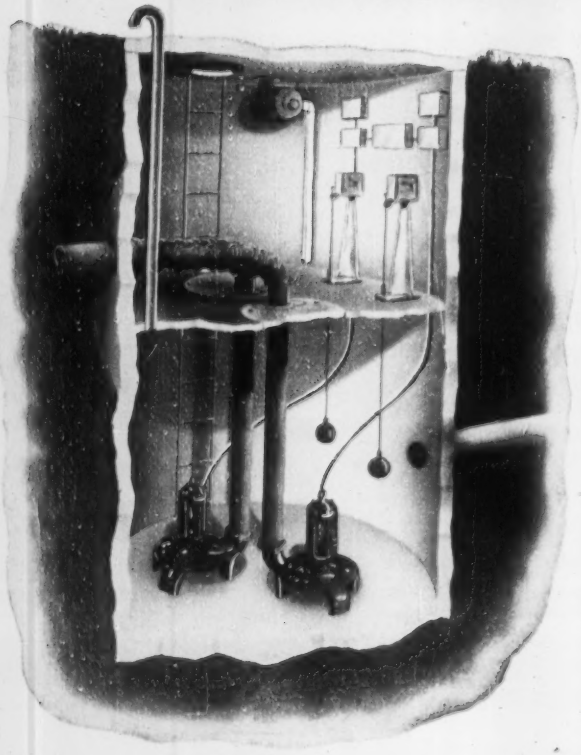
Sheppard extends diesel-powered generator line

A new self-contained unit has been added to the Sheppard line of diesel-powered generating sets. The new plant is mounted on a steel I-beam base and consists of a Model 16 4-cyl diesel with a 20, 25 or 30-kw generator. Available either self-regulated or with external voltage regulation.

The engine has a compression ratio of 22:1 that is said to effect great fuel economies. It also features a full-flow filtration lubrication system that passes all lube oil through a filter before it reaches the bearings.

Various types of automatic controls are available with the new set. Power or Line Failure Starting automatically starts the generator when high line power fails and turns it off when power is resumed; Load Demand Starting, normally used when the plant is to be the main source of power, starts the generator when an electrical load or demand is placed on the system and stops it when the load is removed; Remote Station Starting controls the unit by temperature, pressure or float switch. R. H. Sheppard Co., Inc., Hanover, Pa.

The SUBMERSIBLE SEWAGE EJECTOR



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Discharge: 3" and 4"; ½ H.P. to 3 H.P. Motors.

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NEW Bulletin SE 680 B with plans and specifications for lift station installations as well as other applications will be sent upon request.

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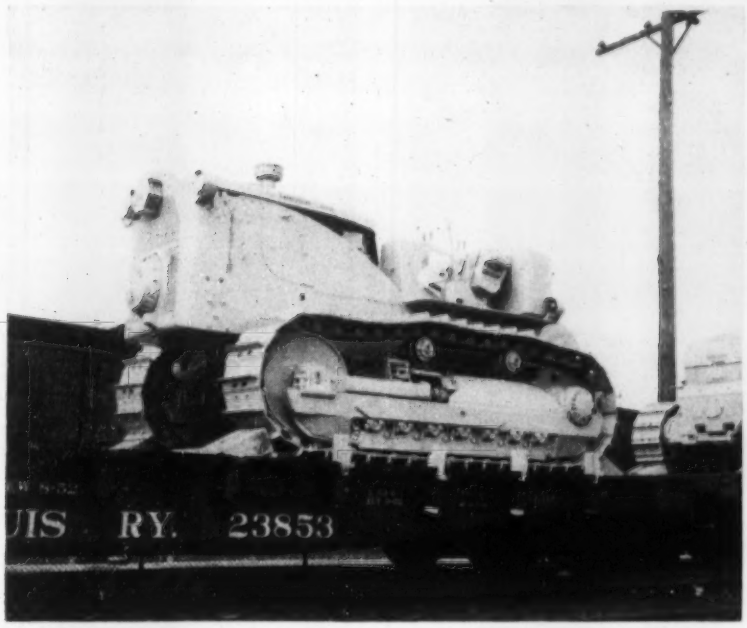


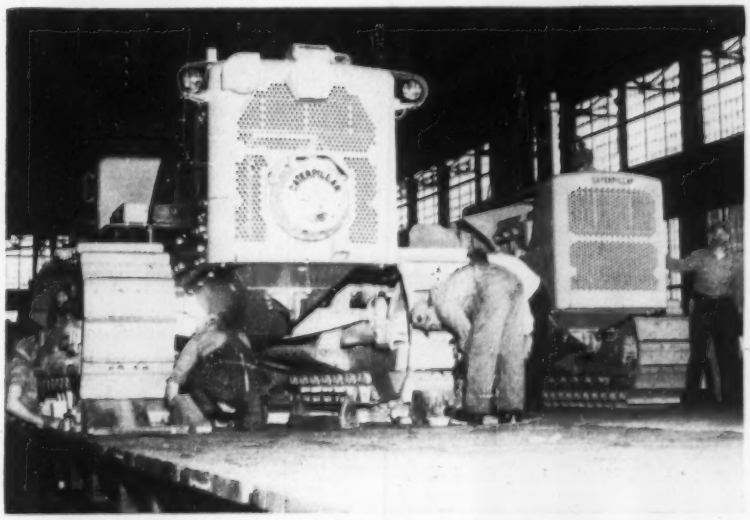
Cat starts test program on D9X

Extensive testing of what is said to be the world's largest, most powerful crawler tractor began this week in a Washington logging job. According to the company, several more D9X's will be assembled and assigned at 3 to 4-week intervals to selected jobs in earthmoving, pipeline clearing, strip mining, spoil bank handling and other heavy duty applications. Final design of production models will incorporate the suggestions and observations from the cooperating companies.

Tentative specifications list the D9X as 18 ft long, 12 ft wide and 10 ft high. The bare tractor weighs 51,500 lb; the blade and cable control add another 11,000 lb. Horsepower setting of the engine will be commensurate with size and weight of machine.

Of the total of ten machines to be tested, five will be equipped with Caterpillar oil-type clutches, and five will have torque converters. CATERPILLAR TRACTOR CO., PEORIA, ILL.

(*Continued on page 130*)



EXPERIMENTAL MODEL is readied for shipment. D8 shown in the background.

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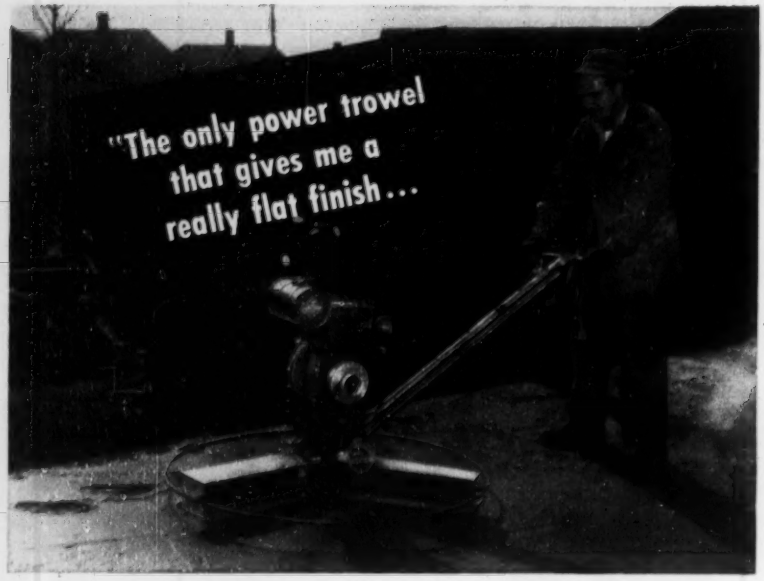

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Contractors can make those statements because the Turn-a-Trowel has rigid—not flexible—blades. Bumps in the floor *have* to come off, so Master-finished floors are flat.

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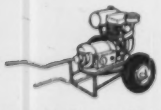
The Master Turn-a-Trowel is a rugged, powerful, top-quality piece of equipment that will help you finish concrete better, quicker and cheaper. For more information mail the coupon below. No obligation.

☐ **Turn-A-Trowel.** Floats and finishes; rigid blade mounting gives precision finish; float and finish blades in single unit, can't get lost; gas and elec.; 34", 48" sizes.

☐ **Concrete Vibrator.** 9,000 rpm vibration, yet lightweight, rugged, gives long service; gas and elec.; wheel mounting available; accessory tools; 1½ to 6 hp power units.

☐ **Remote Power Vibrator.** This "Hycycle" runs 2 high-speed vibrators (10,300 rpm) as far as 300' from power unit, mounted on wheelbarrow, wt. only 172 lbs.; 6.6 hp engine.

☐ **Midget Trowel.** New! Lightweight, one man carries; gets into tight spots; only 24" across yet does top trowel job 6 times as fast as by hand. 70 lbs.; 1.6 hp engine.



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Roof deck provides ceiling, vapor barrier and insulation

Temlock Roof Deck, a fiberboard product, combines the functions of roof deck, insulation, vapor barrier and interior ceiling finish. Suited for residential, commercial and institutional buildings, the board is designed for use in construction of flat, pitched and mono-sloped roofs using accepted types of rigid roofing.

The decking is made of several layers of sheathing over a layer of insulating board. The underside of the material has two layers of ivory paint.

The material can be cut with saws and nailed in place—lap joints are of a modified tongue and groove type sealed with calking compound. The roof deck is available in 2 x 8-ft sizes in thicknesses of 1½, 2 and 3 in. Armstrong Cork Co., Lancaster, Pa.

Increased traction, tread life claimed for new tires

Traction Hi-Miller is the name given to a tire of new design. Available in either all-nylon or rayon cord, the tire is said to increase substantially both traction and tread life.

The claim for greater traction is based on a tread design composed of five heavy zig-zag ribs and deep stop-notches. The stop notch feature, it is pointed out, is the first of its kind in a truck tire.

A 47% greater tread life is reported realized because the new unit is flatter and places more rubber on the road than standard tires, thereby assuring longer, more even wear. GOODYEAR TIRE & RUBBER CO., AKRON, OHIO.

Load transfer switch rated at 100 amp, 5 and 8.66 kv

A new Type M load transfer switch is rated at 100 amp and 5 kv line-to-line for switching line-to-line loads or 100 amp, 8.66 kv line-to-line, for switching line-to-neutral loads.

The Type M is a manually-operated SPDT unit having three integrally connected phase leads that are 8.5 ft long and are terminated by hot line clamps. It has a 25-kv withstand for 1 min at power frequency.

The switch mechanism is housed in an oil-filled tank, and an insulated hanger for the hot line clamps is provided on the tank head. An adjustable bracket is included on the tank for crossarm mounting. The complete unit is 31 in. overall and weighs about 37 lb. including oil. LINE MATERIAL CO., MILWAUKEE 1, WIS.

Horizontal auger designed for heavy-duty service

A new horizontal digger has been developed for drilling in embankments, under highways and sidewalks, under railroad beds and building foundations or for laying mains and underground lines.

The unit is skid mounted for maneuverability and is pinned to the ground with spikes during operation. A force feed screw applies steady pressure on the bit and permits one man to drill up to 40 ft with a 10-in. dia auger or 48 ft with 12-in. dia augers. Cutting heads are removable for sharpening or replacing.

The digger is powered by a Wisconsin gasoline engine of 5½ or 7½ hp through a clutch, reduction gear assembly and chain. J. R. PREWITT & SONS, INC., PLEASANT HILL, MO.

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EDITORIALS

Building code paradox

SEVERAL TALL BUILDINGS currently under construction are being enclosed with curtain walls less than 2 in. thick and having fire-resistance ratings of about one hour or less. Older buildings in the same localities, however, have masonry walls generally 8 in. or more thick and with fire-resistance ratings of two to four hours. A natural conclusion would be that the new type of construction was made possible by building-code changes, but in most cases such a conclusion would be erroneous.

The Statler Hotel in Hartford, Conn., for example, has been enclosed with walls only 1¼ in. thick, without any modernization of the building code (see p. 31). This was possible because Hartford building regulations —like those of many other cities—contain a paradox. They permit all, or nearly all, of the building exterior fronting on a wide street to be of glass, while if another material is used it must be 8 in. thick.

The thin-wall finally adopted for the Statler was reached in two stages: First, building department approval was obtained for glass windows from floor to ceiling, after which permission was obtained to substitute thin steel-faced sandwich panels with higher fire resistance and other desirable characteristics for some of the glass.

None of this maneuvering—always costly in time and frequently discouraging the use of new materials—would have been necessary under a properly worded building code. One of the reasons, of course, that inconsistent requirements are not removed from building codes is that architects and engineers are apathetic until affected personally. Then, it is usually too late to get a code change, and the opportunity is passed. So until architects and engineers make a concerted effort to remove antiquated, illogical requirements from building codes, the use of new materials will be hampered and building costs will remain higher than they might otherwise be.

Setting up a chain reaction

NEW ORLEANS, in celebrating the opening of its new union railway passenger station, could very properly point with pride to an outstanding achievement in municipal engineering. For the station itself is only one element, even though the focal one, of a project that is city-wide in scope. It does away with four other stations. It eliminates all railway grade crossings. And it makes miles of old and now abandoned rail lines available for new streets.

Great in itself, the project is even more significant for the basic foundation it provides for future city development. With a new and efficient traffic net established—both rail and street—the opportunities for a chain reaction of commercial, residential and civic building are wide open. By sensing that the biggest and most difficult problem should be tackled first, and by solving it with wisdom and patience, the officials of the city, the state and the railroads revealed a pattern for municipal progress that has universal applicability.

City officials elsewhere, who may be discouraged by the magnitude of some of their municipal problems, should be encouraged by New Orleans' example. In more cases than not the basic need of our cities is a completely revamped transport net. Instead of being appalled at the difficulty or magnitude of the task, city officials should sense its opportunities. The resulting chain reaction of improvements could well solve many of the city engineering problems that now seem to loom so large.

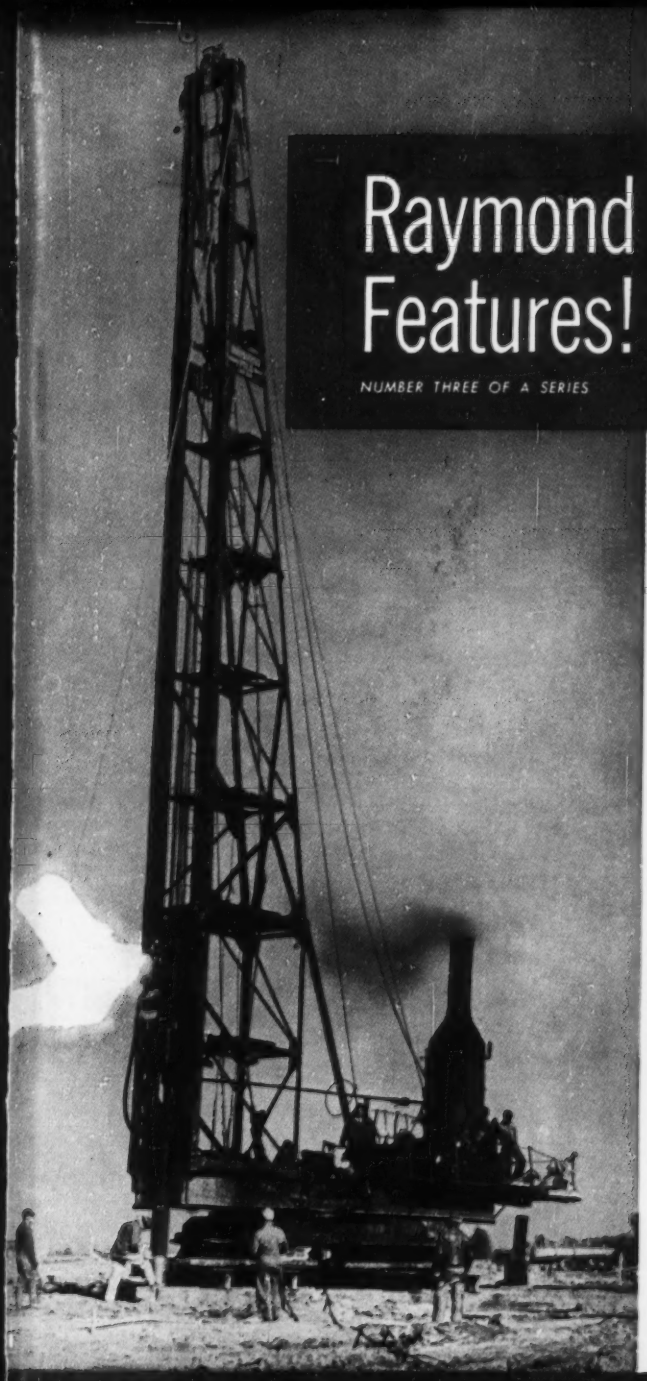
Wage scales on home building

DEVELOPMENTS in Ohio and Rhode Island (ENR May 20, p. 28) where home builders have emerged as organized groups to deal with construction labor—specifically to voice a need for lower wage scales than apply to other classes of construction—point to the need for careful study of this situation by the construction industry as a whole. For homebuilding, which accounts for nearly one-third of the total volume of construction, operates somewhat differently from the balance of the industry. Most homebuilders are small outfits compared with general and specialty contractors. Their individual projects are much smaller, dollar-wise, their contacts with the price-conscious owner much closer and their work much more confined to a specific area and labor market.

Homebuilders—frequently working on only one or two houses at a time—claim they cannot afford the luxury of building tradesmen who are specialists in only one craft and won't touch anything else on the job. Yet they find themselves faced with such a setup, which may also include working under area-wide labor contracts that were negotiated by employers in the large-scale operations category.

The homebuilders' answer, increasingly, is an attempt at negotiation on their own, and it is for this reason that the whole construction industry has a proper interest in the situation. For the emergence of two sets of employers as negotiating groups invites labor negotiators to play one against the other, to the exclusive advantage of short-sighted labor groups, and the not impossible point of pricing homebuilding out of the market, which neither the construction industry nor business in general would relish.

It is well worth considering whether homebuilders should not be included as full-fledged members of existing negotiating organizations, and whether labor contracts cannot be drawn with realistic appreciation—by both labor and employer—of the special conditions that the homebuilder faces.



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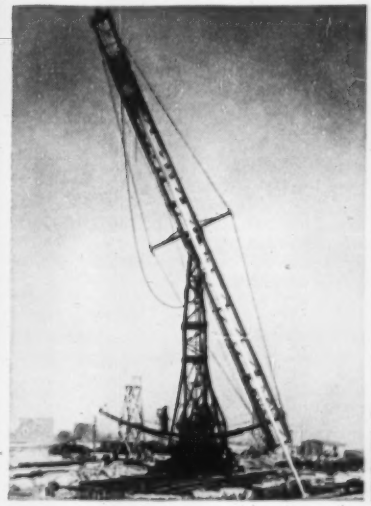

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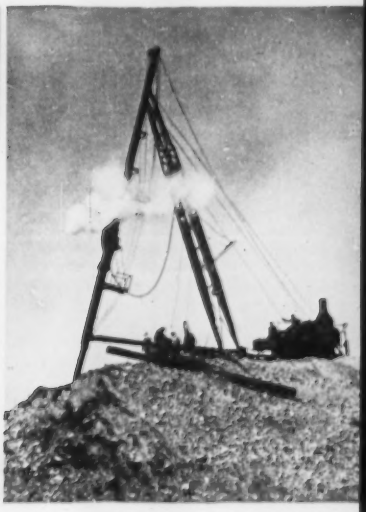

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